THE NATURE OF SEX DIFFERENCES IN SPELLING AS EVIDENCED BY CANADIAN CHILDREN'S FREE WRITING

For Reference

NOT TO BE TAKEN FROM THIS ROOM

W. J. FITZPATRICK M. ED.

For Reference

NOT TO BE TAKEN FROM THIS ROOM

Ex LIBRIS
UNIVERSITATIS
ALBERTAENSIS

UNIVERSITY OF ALBERTA
QUAECUMQUE VERA

Digitized by the Internet Archive
in 2019 with funding from
University of Alberta Libraries

https://archive.org/details/natureofsexdiffe00wilf

Thesis
1960 (F)
13.

THE NATURE OF SEX DIFFERENCES IN SPELLING AS EVIDENCED BY CANADIAN CHILDREN'S FREE WRITING

A Dissertation

Presented to

the Faculty of Graduate Studies

University of Alberta in Edmonton

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

by

Wilfred James Fitzpatrick

September 1960

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned hereby certify that they have read and recommended to the Faculty of Graduate Studies for acceptance, a thesis entitled "The Nature of Sex Differences in Spelling as Evidenced by Canadian Children's Free Writing" submitted by Wilfred James Fitzpatrick in partial fulfillment of the requirements for the degree Master of Education.

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to the following persons for their assistance during the development of this thesis:

Drs. Earl W. Buxton and George M. Dunlop for their assistance, guidance, and encouragement; Dr. Marian D. Jenkinson for her helpful advice and constructive criticism; the teachers and pupils who participated in the dictated tests; Mr. Harvey Zingle who was most helpful; my wife, Susan Fitzpatrick for the constant assistance and encouragement she gave; and finally Ethel Campbell for her attentive typing of this study.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	The Problem	1
	Reasons for this Study	2
	Limitations of the Study	4
	A Preview of the Thesis	5
II.	RESEARCH PLAN AND DESIGN	8
	Gathering the Data	8
	Experimental Design	10
	Statistical Treatment	14
	Interpretation of Findings	15
III.	RELATED STUDIES	16
	Sex Differences	16
	Cultural differences	17
	Intellectual differences	20
	Sex Studies in Spelling and Related Areas	23
	Related Spelling Studies	26
IV.	QUANTITATIVE DIFFERENCES	35
	Population	35
	Plan of the Study	35
	Findings	36
	Conclusions	42

CHAPTER		PAGE
V.	QUALITATIVE DIFFERENCES	43
	Population	43
	Plan of the Study	43
	Findings	48
	Conclusions	63
VI.	CANADIAN SPELLING DEMONS . . .	64
	Population	64
	Plan of the Study	66
	Findings	68
	Conclusions	81
VII.	THE SUMMARY OF FINDINGS AND CONCLUSIONS	93
	Quantitative Study	93
	"Qualitative" Study	94
	Canadian Spelling Demons . . .	95
	Implications for Further Research .	96
BIBLIOGRAPHY	. . . . .	101
APPENDIX A.	Sample Letter to Provincial Authorities	106
APPENDIX B.	Standardized Instructions for Free Writing to the Classroom Teacher	109

TABLE OF CONTENTS (continued)

			PAGE
APPENDIX	C1	Quantitative Tally Sheet . .	111
APPENDIX	C2	"Qualitative" Tally Sheet . .	112
APPENDIX	D	Commonly Known Demon Lists . .	114

LIST OF TABLES

TABLE		PAGE
I.	The Number of Spelling Errors Made by Canadian Students, Grades II to VIII	37
II.	The Number of Errors by Sex and by Grade in Grades II to VIII and the Mean Error Per Student in Each Grade . .	39
III.	Spelling Errors by Sex, by Grade, and by Province in Canada	40
IV.	Population by Grade and by Sex for "Qualitative" Study	44
V.	Group Symbols and Their Meanings . .	47
VI.	The Number of Misspelled Words by Sex, in Grades II to V	49
VII.	The Distribution of Spelling Errors by Grade and by Sex According to the Symbols Based on the Rinsland Word List	50
VIII.	The Results of the Chi-square Test When Applied to the Distribution of Spelling Errors Found in Table VII . . .	52

TABLE		PAGE
IX.	The Results of the Chi-square Test When Applied to the Distribution of Spelling Errors in the Unregistered Word groups, as Found in Table VII . .	54
X.	Percentages of Spelling Errors in Each Rinsland Grouping for Boys and for Girls in Grades II to V	56
XI.	The Sum of the Chi-squares Applied to Grades II to V Unregistered Words Misspelled	61
XII.	Comparison of Unregistered Errors Tallied for Each Sex in Grades II to V . . .	62
XIII.	Demon Tally Population and Dictated Test Population	65
XIV.	Demon Error Counts by Sex in Grades II to V	69
XV.	Frequency of Errors and Percentage of Errors--Grade II	82
XVI.	The Coefficient of Correlation Between Free Writing Demon Scores and Dictated Demon Percentage Scores	92

LIST OF FIGURES

FIGURE PAGE

1. Sex Comparison of Spelling Errors Based on Rinsland's Frequency of Word Usage Ratings - Grade II 57
2. Sex Comparison of Spelling Errors Based on Rinsland's Frequency of Word Usage Ratings - Grade III 58
3. Sex Comparison of Spelling Errors Based on Rinsland's Frequency of Word Usage Ratings - Grade IV 59
4. Sex Comparison of Spelling Errors Based on Rinsland's Frequency of Word Usage Ratings - Grade V 60

ABSTRACT

For this study "The Nature of Sex Differences in Spelling as Evidenced by Canadian Children's Free Writing" some 13,368 children wrote compositions from which the spelling errors were marked and these errors were listed on tally sheets in alphabetical order by sex, by grade, and by province in all of Canada.

A count was then made of the spelling errors, as evidenced by Canadian children's free-written compositions, to show:

a. A comparison of the number of spelling errors made by the boys with the number of spelling errors made by the girls in each grade and for all of Canada.

b. A comparison of the "quality" of spelling errors made by the boys with the "quality" of spelling errors made by the girls.

c. A tabulation of a demon list for Canadian boys and girls. The demon list was given in dictated tests to a representative sample of boys and of girls in both urban and rural school districts in Alberta.

A summary of the findings and conclusions was made. Some of the main findings are:

a. Girls made significantly fewer spelling errors than did the boys.

b. There is very little difference in the "quality" of the words misspelled by either sex although boys seem to use and misspell more of the words which are infrequently used.

c. A Canadian demon list was constructed which shows error counts for the demons misspelled for boys and for girls.

CHAPTER I

INTRODUCTION

I. THE PROBLEM

The purpose of this study is to determine and to attempt to analyze the spelling errors of Canadian boys and girls as revealed in the free writing of a representative population sample from each of the ten provinces in Canada.

Specifically the following problems are to be considered in this study:

1. Do boys misspell a greater number of words than do girls?

2. Do boys misspell a higher "quality"[1] of words than do girls? Are the words boys misspell of a more difficult nature because they are less frequently

---

[1]The term "quality" is here being used in a rather arbitrary way. This term means that, for purposes of this study, a word not frequently used can be said to have a higher "quality" numerically than a word more frequently used. An explanation of the way that numerical "qualitative values" were given to words appears on pages 45 and 46.

used than the words girls misspell? That is, are the words boys misspell of a more difficult nature because they are less frequently used than the words girls misspell?

3. Can a demon list be composed from the free writing of boys and of girls, and can this free writing demon list be compared with the same list of demons given as dictated spelling tests to the appropriate grade levels?

II. REASONS FOR THIS STUDY

There is apparently a need for much spelling research to be done in Canada. Extensive studies of the vocabularies of school children, of word usage tests and of spelling error lists have been made in the United States of America, partly to assist those people engaged in the work of improving school readers, school spellers, and other school textbooks. The resulting vocabulary lists have been generally accepted and widely used in Canada, although no evidence has been produced that they are suitable for use in this country.

Canada is no doubt affected by educational developments in the United States. The mass media of

communication in Canada are permeated with American programs. The Canadian radio and television carry many programs that have originated in the United States. There are few Canadian films except for newsreels and films of an educational nature.

This American influence, however, may not be sufficient to result in complete conformity in spelling patterns between the United States of America and Canada. Some major differences may exist because of the greater effect of British history and culture on our country. Studies of the spelling errors and vocabularies used by Canadian children are essential initial steps to the understanding of children's language development in Canada.

The idea that there may be differences in language patterns and word usage in Canada, is one of the bases for an important task recently undertaken. This task is the development of a dictionary of Canadian English and has been undertaken by a number of interested members of the Canadian Linguistic Association. Some details concerning the project are as follows:

> The Canadian Linguistic Association is preparing and planning the Dictionary of Canadian English on Historical Principles. This is an investigation of the English language in Canada as it differs from as well as resembles British English--the aim being to show what is distinctive about the English language in Canada.
>
> Such an investigation might reveal: that English speaking Canada owes much to Britain, to the United States, to French speaking Canadians, and to native peoples.
>
> Such a dictionary would record Canadian history and culture and would concentrate on those words which are distinctive and which indicate the Canadian way of life.[2]

Clearly, as may be seen from the above dictionary project, a Canadian spelling list would be of inestimable value to those engaged in the work of preparing spellers for use in Canada. Further studies are needed to show that word usage and spelling errors of Canadian students are different from those of other countries. This study may provide some of the foundations on which related studies may be based.

The comparison of the sexes for spelling errors

---

[2]M. H. Scargill, "Canadian Dictionary Projects." This article is the text of a public lecture given under the auspices of the University of Alberta Summer School in August, 1958. Translators' Journal, Volume III, Number 3.

has been done from dictated lists in other countries. The sexes are compared in this study for spelling errors which were taken from the free writing of Canadian children. This study, furthermore, makes separate lists of demons for boys and girls in different grade levels.

III. LIMITATIONS OF THE STUDY

1. In Quebec, because of the bilingual nature of the population, there are influences that are not the same as those in other provinces. In Quebec, therefore, only the English school population was sampled.

2. The frequency of word usage is suggested as the criterion by which a word may be given a "qualitative value." This may not be the only criterion for evaluating the "quality" of a word, but the method does make it feasible to give each word a numerical "qualitative value" and therefore the method was used.

3. The compositions from which the spelling errors were drawn, were written on any subject of the pupils' own choice with the utmost variety in topics being desirable to ensure wide sampling. However, because of the fact that the writing took place at

the same time of the year and because children may have chosen topics pertinent to the time of the year (for example, Valentine's Day) and because there may have been teacher influences which affected the nature of the topics chosen, the range of the children's vocabularies could have been somewhat restricted.

4. Even though the students were requested to write in all forms and types of compositions (for example, narration, description, the letter, the paragraph, and so on) the narrative composition was the most common, and this may have restrictive effects on the range of the vocabulary used.

IV. A PREVIEW OF THE THESIS

Letters were sent to educational authorities in each province in Canada in 1957 and 1958 soliciting their co-operation in a Canada-wide survey of achievement in spelling in schools from Grades II to VIII. Some 13,368 students wrote compositions for this study. The number of children participating was roughly proportionate to the population in each province. The classrooms selected were distributed according to a provincial ratio. The distribution ratio works out as follows:

a. Classrooms from large urban communities, 50,000 and over: ratio--2.

b. Classrooms from small urban communities and towns, 5,000 to 50,000: ratio--1.

c. Classrooms from village and semi-rural areas, under 5,000: ratio--1.

The compositions were marked and the spelling errors were listed on tally sheets in alphabetical order by sex, grade, and province.

A count was then made of the spelling errors, as evidenced by the children's free writing, to show:

a. A comparison of the number of spelling errors made by boys with the number of spelling errors made by girls.

b. A comparison of the "quality" of spelling errors made by boys with the "quality" of spelling errors made by girls.

c. A Tabulation of demon lists for Canadian boys and girls and a correlation was computed between the demon counts made from the free writing compositions and the percentage of the demon counts found from the dictated tests.

d. Separate demon lists were tabulated for boys and for girls in each grade.

Finally a summary of the findings and conclusions was made.

CHAPTER II

RESEARCH PLAN AND DESIGN

I. GATHERING THE DATA

The data for this study came from the free writing of 13,368 students from Grades II to VIII in every province in Canada. Letters were sent to educational authorities in each province in Canada asking them to contribute composition samples for a research project in spelling which was to be carried on under the sponsorship of the Alberta Committee of Educational Reasearch. This study was done as part of a larger study which was to launch research into spelling, vocabulary, and language, utilizing a Canada-wide sample. Urban and rural classrooms were selected by provincial officials following the ratio of, urban--1; rural--1.

Once the schools were selected by the provincial officials for this spelling survey, the principals and teachers concerned were sent standard instruction sheets asking them to comply with the following regulations governing the writing of the

compositions by their students:

1. Ask pupils to write clearly their name, age, sex, grade, the date, and the name of the centre at the top of the first page.

2. The composition may be on any subject of the pupil's choice. The utmost variety in topic is desirable to ensure wide sampling of spelling.

3. The composition is to be of a length regarded as appropriate for completion in one period, the actual writing period is not to exceed thirty minutes.

4. The composition may take the form of a narrative, a description, an exposition, an argumentation, a summary, a personal or business letter.

5. The teacher may use up to twelve minutes in developing motivation, giving directions and answering questions before the writing begins. Formal assistance may be provided in Grades II and III during the writing period. In Grades IV to VIII no assistance may be given after the twelve minutes of preparation.

6. The compositions are to be forwarded without correction or re-writing. It is of the utmost importance that they must represent the students' work and must not be corrected or revised.

7. For convenience in handling, it is desirable that pupils should write their compositions on sheets of uniform size.

The result of these letters of request was the forwarding to Edmonton of a varied group of uncorrected compositions from the classrooms selected. The compositions were then marked for spelling errors. The number of spelling errors on each paper was recorded. The errors were then printed in alphabetical order, as made, on tally sheets. These tally sheets were constructed to show boys' and girls' errors and the frequency of each error for each sex in each grade.

It is important to note here that approximately half of the number of compositions were written in the spring of 1957 and the remainder in the spring of 1958.

II. EXPERIMENTAL DESIGN

The number of students writing free-choice compositions for this study was in rough proportion to the total population in each province. Once the compositions were marked for spelling errors, and the errors were listed on the tally sheets in alphabetical order,

these sheets were filed under sex, grade, and province headings.

After the data were organized, a quantitative analysis of the spelling errors was begun. The total number of spelling errors in each grade from each province for both boys and girls was found. To find the mean error per student for each sex and for each grade in all of Canada, the totals of errors were divided by the numbers of students. A comparison was then made between the means of the spelling errors made by the boys and the means of the spelling errors made by the girls in each grade and in each province. This was called a province-grade-sex comparison.

The next part of this study was the "qualitative" analysis of the spelling errors made by the boys and a similar "qualitative" analysis of the spelling errors made by the girls. Each error was given a numerical "qualitative value." This value was based on the Rinsland[1] study of frequency of word usage in children's vocabularies. Rinsland

---

[1]Henry D. Rinsland, A Basic Vocabulary of Elementary School Children (New York: The MacMillan Company, 1945), p. 14.

chose a symbol to indicate the frequency of word usage by elementary school children. With this symbol as the basis the investigator assigned a value to each of the spelling errors which was called a numerical "qualitative value." (The less frequently a word was used in a grade level, the higher would be its "qualitative value" as a spelling error. This was an arbitrary decision to give a numerical "qualitative value" to each spelling error for the purpose of comparing the "quality" of the spelling errors made by the boys with the "quality" of the spelling errors made by the girls). After the"qualitative" values were found for the spelling errors made by the boys and the girls in each of the grades from two to five, a comparison was then made of the "qualitative values" given to the boys' errors and to the girls' errors in these grades.

The third part of the design of this study was the selecting of Canadian demons. A comprehensive demon list was constructed from other demon lists. Specifically these were the Jones' list,[2]

---

[2]W. Franklin Jones, Concrete Investigation of the Material of English Spelling (Vermillion, South Dakota, University of South Dakota, 1913), p. 24.

the Fitzgerald list[3], and the Gates list[4] (as found in the Pupils' Own Vocabulary Speller). The spelling errors that recurred consistently from the Canadian children's free writing, were added to this comprehensive demon list. Demons from the other lists that did not occur frequently enough to become Canadian demons were deleted from the comprehensive list.

A criterion for the selecting of Canadian demons had to be established. Such a criterion was chosen so that it would select a total number of demon words that would be approximately equivalent to two hundred and fifty. This total number of two hundred and fifty demons would create a Canadian demon list that would be similar in number to the average of other known demon lists referred to. The error frequency for each word considered a Canadian demon was tallied for each sex in each grade from Grades II to V.

---

[3]James A. Fitzgerald, A Basic Life Spelling Vocabulary (Milwaukee: Bruce Publishing Co., 1951), pp. 144-150.

[4]Gates, and others, The Teachers' Manual to Accompany the Pupils' Own Vocabulary Speller (Revised), (Toronto: The Macmillan Company of Canada, Ltd., 1952), p. 9.

Spelling tests were constructed from the Canadian demon list and these tests were dictated to classes of students from Grades II to V in the Jasper Place School District and the Clover Bar School Division. The tests were marked and spelling error counts were compiled for each word on the dictated tests. These counts were changed to percentages. A correlation was computed between the tally scores of the Canadian spelling demons found in free writing and the percentages found for these demons on the dictated spelling tests.

In summary, from the data of the spelling errors made by Canadian children, a comparison was made of the quantity of spelling errors made by the boys with the quantity of spelling errors made by the girls. Another comparison was made of the "quality" of spelling errors made by boys with the "quality" of spelling errors made by girls. Finally, a Canadian demon list was constructed for boys and for girls, from these spelling errors and the demon counts were correlated with the same demons given in dictated spelling tests to each appropriate grade level, from Grades II to V.

III. STATISTICAL TREATMENT

In the quantitative analysis of spelling errors the t-test[5] was used to determine the significance of difference between the boys' and girls' means for the spelling errors in each grade in Canada. Also the t-test was used to determine the significance of difference between the boys' and girls' means for the spelling errors made in all of Canada.

The chi-square test[6] was used in the "qualitative" analysis to determine whether there was a true sex difference in the "quality" of the words misspelled. A correlation was computed to compare the demon counts from free writing with the percentage of the demon errors on the dictated tests.

IV. INTERPRETATION OF FINDINGS

All results were presented in descriptive, point, tabular, or graphic form. In each part of the study the findings were noted and an indication of their values for possible further studies made. In conclusion the chief implications of the principal findings were discussed.

---

[5]Henry E. Garrett, Statistics in Psychology and Education, (New York: Longmans, Green, and Company, Fourth Edition), pp. 190-192.

[6]Ibid., p. 263.

CHAPTER III

RELATED STUDIES

I. SEX DIFFERENCES

Boys are exposed to the male traditions of their culture and girls to the female traditions. In any given society, children learn that roles which are appropriate for one sex are not appropriate for the other. Fred Tyler[1] states "Children begin to systematize their sex-roles at an early age. Class membership has its influences upon the ages at which the two sexes begin to manifest the expected sex-roles."

Shuttleworth[2] found that females reach physical maturity first. Definite differences are found in height, weight, build, and strength. Although these differences are slight at birth, they become large at pubescence.

---

[1]Fred T. Tyler, "Individual and Sex Differences," Encyclopedia of Educational Research (New York: The Macmillan Company 1960), p. 686.

[2]F. K. Shuttleworth, The Adolescent Period; A Graphic and Pictorial Atlas (Society for Research in Child Development Monographs, Volume 3, Number 3, 1938), p. 246.

Cultural sex differences. Cultural influences and cultural sex differences appear early and increase regularly. Freeman[3] states that:

> Boys prefer active and vigorous plays and games, games involving muscular dexterity and skill and sports involving competition and organized team play. Girls are recreationally more conservative; more likely to engage in sedentary activities and pursuits involving a restricted range of action.

Numerous writers have found sex differences in mean scores on tests intended to assess motivational characteristics. Harris and others[4] found girls to be more responsible than boys. Tuddenham[5] reported girls to be more quiet, docile; and boys to be more aggressive, bold, and active. Schoeppe and others[6] conclude that conformity to the social code is more important to girls than to boys.

---

[3]F. Freeman and C. Miles, "Sex Differences," Encyclopedia of Educational Research (New York: Macmillan Company, 1950), pp. 1201-4.

[4]Dale B. Harris and others, "The Measurement of Responsibility in Children," Child Development, Volume 25,1954, pp. 21-28.

[5]Read D. Tuddenham, "Studies in Population," Psychology Monograph, Number 333, 1951, p. 58.

[6]Aileen Schoeppe and others, "Some Factors Affecting Sixteen-Year-Olds' Success in Five Developmental Tasks," Journal Abnormal, Social Psychology, Volume 48, 1953, pp. 42-52.

Martire and Hornberger[7] in their article on Self-Congruence, state the following:

> . . . shows that the (Ss) social-self correlation of .85 is significantly lower than the (Si) self-ideal correlation of .93--meaning that these males and females are more alike in terms of their self-ideal than in terms of their social expectations. Such a finding may be attributed to different standards set for each sex.
>
> . . . . . .
>
> Women show lower self-congruence than do men perhaps because these college women have greater social pressure to conform and are consequently less independent. . . . Women show a greater discrepancy in their (Ss) social-self scale than men do. . . . Females see themselves as being and behaving in a manner different from what society expects of them.

The fact that women strive so hard to conform is probably because they feel they are different from what society expects of them.

It would seem logical that spelling is one academic area where conformity is required. Spelling as a study seems to require external conformity by the student. This may help to explain why girls, because of their conforming nature, seem to be better spellers than the boys.

---

[7]J. C. Martire, and R. H. Hornberger, "Self-Congruence by Sex and Between the Sexes, in a Normal Population," Journal of Clinical Psychology, Volume 13, March, 1957, pp. 288-291.

Sex differences in interests have been found. Fred Tyler[8] states:

> From test data and observational records, the evidence seems rather clear that men have stronger mechanical and scientific interests and women have stronger artistic and literary interests.

However, Seder[9] found that some of these differences disappear when the interests of men and women in a specific occupational group are compared.

In summary then, the cultural sex differences that are important in our society may be briefly stated as follows: Aggressive and dominant behaviour appear to be more common in the boys, whereas girls are more often found to be docile and conforming. Manners, getting along with others, social interests, and social recognition are more highly valued by females.

For the purposes of this study the above trends in sex differences may suggest that in the frequency of word usage, girls would conform more and use the more common words, whereas boys might be more indivi-

---

[8]Fred T. Tyler, "Individual and Sex Differences" (Encyclopedia of Educational Research, New York: The Macmillan Company, 1960), third edition, p. 685.

[9]Margaret Seder, "The Vocational Interest of Professional Women" (Journal of Applied Psychology, Volume 24, 1940), pp. 130-3 and 265-72.

dualistic and roam more widely in their choice of words. The boys might use more infrequently used words than the words that are used by the girls.

Intellectual sex differences. Intelligence tests show no well defined advantages for either sex but parts of these tests regularly show characteristic differences.[10] Girls tend to be consistently superior in the verbal tasks; and boys tend to be superior in the arithmetical and mathematical tasks. Girls early show greater facility with speech than do boys, and girls regularly develop larger vocabularies.[11] However, at seven or eight years of age boys excel in arithmetic reasoning and this trend becomes accentuated.[12]

Boys in informational scores more often remember facts relating to the aggressive, adventurous,

---

[10]Quinn McNemar, The Revision of the Stanford-Binet Scale (Boston: Houghton Mifflin Company, 1942), p. 185.

[11]F. Freeman, and C. Miles, "Sex Differences," Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 1205.

[12]J. B. Rhinehart, "Sex Differences in Dispersion at High School and College Levels," Psychology Monograph, 1947, Volume 61, Number 1.

and enterprising activities. Also they remember more readily physical and scientific facts. Girls recall more readily sympathetic incidents; social welfare and family relationships; domestic matters, and facts in art and literature--especially in poetry and fiction.[13]

In school achievement, boys are superior in arithmetic, nature study, science, history, and literature. Girls, on the other hand, are superior in oral and silent reading, language usage, spelling, and handwriting.[14] In educational progress, girls are generally ahead of boys from the lowest grades through the high school.[15] Their relatively greater verbal ability, passivity, and desire for conformity probably cause this. Their exclusion from the more highly regarded extracurricular activities and the lesser capacity of women teachers to appreciate the

---

[13]L. M. Terman, and C. Miles, Sex and Personality Studies in Masculinity and Femininity, (New York: McGraw-Hill Book Company, Inc., 1936), p. 600.

[14]L. M. Terman, "Psychological Sex Differences" Manual of Child Psychology (Wiley Publishing Company, 1946), pp. 954-1,000.

[15]E. A. Lincoln, Sex Differences in the Growth of American School Children (New York: 1927), p. 189.

boys' more individualistic and more independent efforts may also cause the boys to be lower academic achievers.[16]

From early childhood, girls are more protected, more influenced in the directions of self-restraint and law-abiding conservatism. Boys, on the other hand, are early urged to take initiative and responsibility. Boys roam more widely, experience more variedly and early show traits of dominance and strength. Types of training show these contrasts which are observed in classroom behaviour and in school marks of boys and girls. Our culture, our society, and physical differences--all tend to reinforce these constitutional contrasts.[17]

In summary, and in relation to this study, these cultural and intellectual differences would seem to indicate:

a. That girls should be better spellers than boys. They seem to read more, write more, be more interested in the verbal tasks. The girls are also better conformists and spelling is a subject which seems to require conformity.

---

[16]L. C. Day, "Boys and Girls in Honor Ranks," School Record, Volume 46, 1938, pp. 288-299.

[17]F. Freeman, and C. Miles, "Sex Differences," Encyclopedia of Educational Research (New York: MacMillan Publishing Company, 1950), p. 1204.

b. That boys experience and roam more widely and therefore may use a rarer type of word than do girls and perhaps spell them incorrectly because of their lesser interests in the verbal tasks.

c. That certain words would likely be used more frequently, due to sex interests, and therefore would more likely be misspelled by the different sexes. Certain words might be misspelled often enough by each sex to become demons for that sex.

II. SEX STUDIES IN SPELLING AND RELATED AREAS

Wallin[18] made a study in spelling efficiency in relation to sex, grade, and age in Cleveland schools. He states:

> Girls are more proficient spellers than boys. The differences between the gross average of all the schools was 2.10 per cent. This conclusion is in entire accord with Rice's[19] and Cornman's[20]

---

[18]J. E. Wallin, Spelling Efficiency in Relation to Age, Grade, and Sex and the Question of Transfer Warwick and York, Inc., Baltimore, 1911), p. 49.

[19]J. M. Rice, The Futility of the Spelling Grind (New York: The Forum, 1897), 163f, 409f.

[20]Oliver P. Cornman, Spelling in the Elementary School (Boston, 1902).

results. Both found that girls outstripped the boys.

Wallin[21] concludes:

> Hence it appears that the girls' superiority is mostly on the side of verbal memory, or the mechanical phases of memorizing. They are less aided by the meaning or context; the thoughts in connected discourse appears to suggest the spelling more for the boys than for the girls. The results would seem to lend experimental verification to the oft-repeated dictum that while girls surpass boys in memory work, the boys excel the girls in work requiring judgment, reasoning, and reflection. This is particularly true, so far as these results indicate, for the older boys.

These conclusions would seem to corroborate the quantitative findings of this spelling study in Canada.

I. H. Anderson[22] in his article on the rate of reading and its relation to sex, notes the following:

1. The age of learning to read was widely distributed among both boys and girls.

2. The age of learning to read was correlated with intelligence quotients recorded in the first

---

[21] J. E. Wallin, op. cit., pp. 56-57.

[22] I. H. Anderson and others, "Rate of Reading Development and Its Relation to Age of Learning to Read, Sex, and Intelligence," Journal of Educational Research, Volume 49, March, 1957, pp. 447-453.

grade (the coefficients of correlation were 0.57 for girls and 0.54 for boys).

3. No difference of any significance attributable to sex were shown in either rate of reading development as a whole or when rate was classified in terms of different beginning reading periods.

Northby[23] in his article stated the following:

> It is well known that the academic performance of girls is superior to that of boys throughout the grade level.
>
> . . . . . .
>
> From these data it is evident that when rank in graduation class is used as a criterion of high school academic success, the girls in Connecticut high schools are distinctly superior to the boys. The percentage of girls in the top decile is more than twice that for the boys. On the other hand the percentage of the boys in the bottom ten per cent was nearly twice as large as that for the girls. . . . When high school boys and girls are compared on the basis of scores made on an intelligence test . . . differences between the two scores are relatively negligible.

The Northby article would seem to indicate that girls perform better in the academic subjects. This article would support the fact that girls are better spellers.

---

[23]A. S. Northby, "Sex Differences in High School," School and Society, Volume 86, February, 1958, pp. 63-64.

III. RELATED SPELLING STUDIES

Lyman[24] found that, in the types of technical errors that occur in compositions, spelling averaged second consistently in error frequencies--the first in error frequency being punctuation.

He states:

> Mistakes in spelling ranked first in frequency in the Johnson[25] and Armstrong[26] studies and second in frequency in the Stormzand[27] and Lyman studies. Spelling accounted for thirty-one per cent of the errors in the Johnson study, nineteen per cent of the errors in the Armstrong study, sixteen per cent of the errors in the Lyman study, and fifteen per cent of the errors in the Stormzand study.

He further states:

> A committee of the Illinois Association of

---

[24]Rollo L. Lyman, Summary of Investigation Relating to Grammar, Language, and Composition (Chicago, Illinois, University of Chicago, January, 1929), pp. 86-90.

[25]R. Ivan Johnson, "A Study of Errors in English Composition" (unpublished Master's thesis, Department of Education, University of Chicago, 1917), p. 59.

[26]Wallace B. Armstrong, "A Study of the Relative Frequency and Persistency of Technical Errors in Written Composition" (unpublished Master's thesis, Department of Education, University of Chicago, 1920), pp. vi and 135.

[27]M. J. Stormzand, and M. V. O'Shea, How Much English Grammar? (Baltimore: Warwick and York, Inc., 1924), p. 224.

> Teachers of English[28] reported a study of technical errors found in compositions of college freshmen and senior high school students. They reported findings that agreed with the above studies. Approximately forty per cent of the errors were in punctuation and twenty-five per cent were in spelling.

Furthermore, Seegers[29] found the following:

> Errors in spelling ranked first in frequency in a study of compositions of pupils in Grades VII and VIII. Punctuation was second and errors in grammar ranked third.

These findings would seem to indicate the importance of spelling as a technical error in composition and a reason for the continuance of spelling studies.

The Scottish Pupil's Spelling Book (Teacher's Book)[30] states that:

> 1. Children should be taught to spell words they want to write. Spelling should be associated with writing rather than reading. A child reads more words than he writes.
>
> 2. This list is compiled from seventy thousand compositions written by children from schools in all of Scotland.

---

[28]Essie Chamberlain, Report of the Committee on Curriculum Construction (Illinois Association of Teachers of English, January, 1920), pp.1-12.

[29]J. C. Seegers, "Improvement in Language Work," (Elementary School Journal, Volume XXIV, November 1923), pp. 191-6.

[30]The Scottish Council for Research in Education, The Scottish Pupil's Spelling Book (Teacher's Book), (University of London Press, Ltd., 1957), pp. v-vi.

3. A count was made on how often each word was used and on how often it was misspelled.

4. The words were selected according to frequency of use and spelling difficulty.

The Scottish Pupils' Spelling Book seems to support the methods of gathering the data on spelling errors and of selecting the demons. Such methods which were carried out by this investigator seem to be corroborated by this spelling book.

Horn[31] in his article on spelling says:

> . . . The most widely accepted objective for teaching spelling is to enable pupils to spell the words they need to write in life outside the school. Whenever this criterion of social usefulness is neglected, instruction tends to become faddish, formal, and unrelated to the needs of life.
>
> . . . . . .
>
> There have been a number of studies of words most frequently misspelled in letters and compositions at various grade levels. These investigations of children's errors provide a valuable indication word by word, of the first grade at which errors occur, the grades in which errors are most frequent, and the grades through which errors persist.
>
> . . . . . .
>
> There is a significantly large overlap between the words frequently written by children and those frequently written by adults.

---

[31]Ernest Horn, "Spelling", Encyclopedia of Educational Research, (New York: Macmillan Company, 1950), p. 1250.

> The criterion most useful for selecting words for total curriculum and for spelling grade levels is gross frequency . . .

These quotations from the article by Horn on spelling would seem to corroborate the methods (1) of spelling error frequency counts; and (2) of demon selection by frequency counts as carried out by this investigator.

Horn[32] further states:

> . . . The most intensive study of the vocabulary of elementary school children is that made by Rinsland who analyzed more than six million running words from children's writings, including letters, themes, examination papers and other miscellaneous materials from a large number of schools with a wide geographic distribution. The frequencies for all words with a total frequency for all eight grades of three or above are reported by grades . . .

On the basis of the above statements it may be clearly seen why Rinsland was used as a major reference in this investigator's study.

Horn[33] states in his article on "Research in Spelling:"

To construct spelling curricula--

a. Choose the most frequent words on child and adult lists.

---

[32]Ernest Horn, "Spelling," Encyclopedia of Educational Research, (New York: Macmillan Company, 1950), p. 1251.

[33]Ernest Horn, "Research in Spelling" (Elementary English Review, January, 1944), pp. 6-13.

b. Frequent words of children's lists but which are infrequent to adults' lists should be taught incidently.

c. Frequent important words of adult lists but infrequent to children's lists should be placed on the final end of school curricula.

d. Teach approximately six hundred words per year--with a ninety-five to ninety-nine per cent accuracy and limit your list to words that are most likely to be frequent for that grade.

In her article Nolde[34] states:

1. Listed words correctly spelled do not necessarily become correctly spelled in context situations.

2. A limited amount of perfectly known words is better than a more varied group of vague words.

3. Words, to be spelled correctly, must be used in varying streams of writing.

From the above three articles it may be seen that:

a. Words most frequently used in children's and adults' lists should form the spelling curricula.

b. A limited number of words should be taught accurately each year.

c. Words used in writing are more important in spelling curricula than words chosen from spelling lists.

---

[34]Ellenjardin Nolde, "Spelling Knowledge and Skill" (Elementary English Review, April, 1946), pp.170-174.

d. Words most frequent in writing at that grade level should be taught and demons should probably be taught in context situations.

Fitzgerald[35] states:

> . . . It seems clear from the statements of experts and the findings from word study that the grade placement of a word for the spelling course of study should be based principally upon:
>
> 1. The need of children for the word in their writing in situations inside the school.
>
> 2. The persistency of difficulty of the word in writing in consecutive grades. . . .

His objective data[36] for placing spelling words in a grade are as follows:

> 1. The frequency of use in children's letters written in life outside the school.
>
> 2. The frequency of use in valid theme lists and school writings.
>
> 3. The frequency of occurrence in the spoken vocabulary of young children.
>
> 4. The frequency of occurrence in primary reading vocabularies.
>
> 5. Spelling difficulty for children at different grade levels.
>
> 6. Persistency of difficulty of certain words at different grade levels.
>
> 7. The frequency of use in adult writing. . . .

---

[35]James A. Fitzgerald, A Basic Life Spelling Vocabulary, (Milwaukee: Bruce Publishing Company, 1951), p. 136.

[36]Ibid., p. 138.

To select demons Fitzgerald[37] used the following criteria to form his two hundred and twenty-two spelling demon list:

> The hundred most frequently misspelled words by children of each of Grades II to VI were combined into a master demon list of two hundred and twenty-two words.
>
> . . . . . .
>
> Of 42,992 misspellings tabulated in 682,082 running words, these 222 demons were misspelled 26,636 times, or approximately 55 per cent of the entire number of misspellings in the total writing.
>
> It should be understood that the spelling-error data reported on these words resulted when they were used in more or less spontaneous writing.

Fitzgerald[38] further states:

> These 222 words accounted for more than 61 per cent of the total number of running words of the whole investigation and for approximately 52 per cent of the running writing basic to the Rinsland list.
>
> These 222 words are crucial words because they are used so frequently in child writing, because they are misspelled so frequently, and because they are so frequently misspelled from grade to grade. They are commonly used in reading. All but 44 are in the Gate's reading list and all but 63 are among the most common 1,000 of the Gates' list. They are of permanent value,

---

[37] James A. Fitzgerald, A Basic Life Spelling Vocabulary, (Milwaukee: Bruce Publishing Company, 1951), pp. 142-3.

[38] Ibid., pp. 150-151.

for all but three are found in Horn's "A Basic Writing Vocabulary" and all but fifty-three in his commonost one thousand.

Gates[39] in "The Teachers' Manual to Accompany the Pupils' Own Vocabulary Spellers," states:

> The only proper means of selecting spelling words is the widest possible sampling of children's writing.
>
> Although the spellers' basal list came from 25,636 different words only 2,909 accounted for over ninety per cent of the total usage in all writings for the Rinsland study.

Gates[40] in selecting demons for his list:

> . . . took into account all available lists of words commonly misspelled. These lists were compiled into one composite list of 344 words that had proved to be exceptionally difficult for a fairly large proportion of children the country over.

The procedures used by Fitzgerald and Gates in selecting their demons would seem to support the procedures of selecting demons for this study in so far as the following methods were used:

a. The making of a composite demon list.

---

[39]Gates, Rinsland, Sartorius, and Peardon, The Teachers' Manual to Accompany the Pupils' Own Vocabulary Spellers, (Revised),(Grades VII-VIII) (Toronto: The Macmillan Company of Canada, 1952), p. vi.

[40]Ibid., p. ix.

b. The selecting of demons on the basis of frequency of misspellings from a wide sample of children's free writing.

c. The grading of spelling demons according to their frequency of spelling error in each grade level.

CHAPTER IV

QUANTITATIVE DIFFERENCES

The following statements show how the "quantitative" sex differences in spelling were investigated.

I. POPULATION

1. Students were chosen from Grades II to Grade VIII from all ten provinces in Canada.

2. The number of students from each province was in proportion to the total population of that province.

(In Quebec the number of students was proportional to the English speaking population only).

3. There was a 1.1 ratio of the classes from the urban areas with the classes from the rural areas.

4. The number of students chosen from Grades II to VIII was 6,566 boys and 6,802 girls or a total of 13,368 pupils for all of Canada.

II. PLAN OF THE STUDY

1. The free writing compositions were marked for spelling errors and the errors were printed in alphabetical order, as made, on the tally sheets.

2. On boys' and on girls' tally sheets the spelling errors and their frequencies were recorded.

for each grade in each province.

3. The tally sheets were arranged and filed by sex, grade, and province.

4. The totals of the spelling errors for each sex in each grade were found. Also the totals for each province and for all of Canada were found.

5. The mean error per student for each sex in each grade was found. The mean error per student for each province and for all of Canada was also found.

III. FINDINGS

Findings for all of Canada. Table I shows the spelling errors made by Canadian students in each grade from Grades II to VIII in Canada.

These facts become apparent as one examines Table I.

1. In Grades II to VIII the 6,566 boys made 26,766 spelling errors--an average of 4.08 errors per boy.

2. In Grades II to VIII the 6,802 girls made 20,238 spelling errors--an average of 3.00 errors per girl.

3. The difference between the mean error of the girls and the mean error of the boys is 1.08

TABLE I

THE NUMBER OF SPELLING ERRORS MADE
BY CANADIAN STUDENTS
GRADES II TO VIII

Sex	Boys	Girls	Total
Number of Errors	26,766	20,238	47,004
Number of Students	6,566	6,802	13,368
Mean Error Per Student	4.08	3.00	3.52
$\bar{X}F - \bar{X}M$	1.08		

4. This difference is significant at the .01 level and is shown by using the t-test which indicates the reliability of the difference between two independent means.[1]

Findings by grades for all of Canada. Table II indicates the number of spelling errors made by boys and by girls in each grade from Grades II to VIII and the mean error per student in each of these grades.

From Table II the following facts become evident:

a. In every grade from Grades II to VIII the girls made fewer errors than did the boys.

b. In each of the seven grades the differences between the mean error for boys and the mean error for girls were significant at the .01 level. (t-test)

Findings by grade and by province for all of Canada. Table III shows the number of errors per student, the number of students, and the mean error per student for each sex in each grade and for each province in all of Canada.

As one examines Table III these facts become apparent.

---

[1]Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Company, 1954), pp. 213-215.

TABLE II

THE NUMBER OF ERRORS BY SEX AND BY GRADE IN GRADES II TO VIII AND THE MEAN ERROR PER STUDENT IN EACH GRADE

Grade	II		III		IV		V		VI		VII		VIII	
Sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F
$\sum f(x)$	2,750	2,032	3,392	3,105	4,569	3,254	4,201	3,038	4,135	2,994	4,943	3,456	2,839	2,365
N	936	900	832	878	973	976	966	1,010	916	914	1,115	1,161	828	963
$\bar{x}$	2.94	2.26	4.00	3.54	4.70	3.33	4.35	3.01	4.51	3.28	4.43	3.28	3.44	2.59
$\bar{x}f - \bar{x}m$	0.68		0.46		1.37		1.34		1.23		1.46		0.85	

Note: These differences are significant at the .01 level. ("t-test")

TABLE III

SPELLING ERRORS BY SEX, BY GRADE, AND
BY PROVINCE IN CANADA

Grade		Province A			Province B			Province C			Province D			Province E			Province F		
		fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$
II	Boys	519	117	4.44	362	59	6.14	300	122	2.46	287	130	2.21	720	196	3.67	71	55	1.29
	Girls	434	146	3.19	185	63	2.94	285	106	2.69	229	126	1.82	355	150	2.37	57	47	1.21
III	Boys	411	89	4.62	295	79	3.73	555	115	4.83	576	122	4.72	726	184	3.95	99	57	1.74
	Girls	377	84	4.49	245	79	3.10	646	132	4.89	463	111	4.17	593	205	2.89	35	37	0.95
IV	Boys	632	145	4.36	653	97	6.73	780	124	6.29	875	167	5.24	627	173	3.62	133	55	2.42
	Girls	466	117	3.98	367	87	4.22	441	104	4.24	618	171	3.61	402	167	2.41	79	37	2.14
V	Boys	302	54	5.59	426	86	4.95	475	121	3.93	938	182	5.15	820	199	4.12	132	57	2.32
	Girls	267	67	3.99	322	86	3.74	344	119	2.89	512	160	3.20	727	215	3.38	61	55	1.11
VI	Boys	860	156	5.51	390	89	4.38	773	135	5.73	572	129	4.43	508	133	3.82	117	40	2.93
	Girls	649	166	3.91	322	85	3.79	496	117	4.24	342	113	3.03	537	153	3.51	88	47	1.87
VII	Boys	865	180	4.81	799	140	5.71	496	117	4.24	546	176	3.10	832	183	4.55	113	48	2.35
	Girls	647	221	2.93	506	152	3.33	382	118	3.24	571	227	2.52	548	179	3.06	67	31	2.16
VIII	Boys	334	100	3.34	496	90	5.51	360	94	3.83	370	116	3.19	478	148	3.23	-	-	-
	Girls	351	147	2.36	434	115	3.77	232	103	2.25	255	126	2.02	408	166	2.46	-	-	-
$\sum$ fx	Boys	3,923			Boys 3,421			Boys 3,739			Boys 4,164			Boys 4,711			Boys 665		
	$\sum$ N		841			640			828			1,022			1,216			312	
	$\bar{x}$		4.67			5.35			4.52			4.07			3.87			2.13	
$\sum$ fx	Girls	3,191			Girls 2,381			Girls 2,826			Girls 2,990			Girls 3,570			Girls 387		
	$\sum$ N		948			667			799			1,034			1,235			254	
	$\bar{x}$		3.37			3.57			3.54			2.89			2.89			1.52	

TABLE III (continued)

Grade		Province G			Province H			Province I			Province J			C A N A D A		
		fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$	fx	N	$\bar{x}$	$\sum$ fx	$\sum$ N	$\bar{x}$
II	Boys	179	58	3.09	125	106	1.18	73	32	2.28	114	61	1.87	2,750	936	2.94
	Girls	70	43	1.63	231	123	1.88	68	40	1.70	118	56	2.11	2,032	900	2.26
III	Boys	300	50	6.00	256	100	2.56	78	22	3.55	33	14	2.36	3,329	832	4.00
	Girls	373	80	4.66	284	113	2.51	38	16	2.38	51	21	2.43	3,105	878	3.54
IV	Boys	380	56	6.79	309	107	2.89	73	23	3.17	107	26	4.12	4,569	973	4.70
	Girls	258	65	3.97	280	151	1.85	216	50	4.32	127	27	4.70	3,254	976	3.33
V	Boys	360	92	3.91	459	119	3.86	139	17	8.18	150	39	3.85	4,201	966	4.35
	Girls	230	74	3.11	337	162	2.08	73	15	4.87	165	57	2.89	3,038	1,010	3.01
VI	Boys	312	83	3.76	341	90	3.79	179	41	4.37	83	20	4.15	4,135	916	4.51
	Girls	199	80	2.49	256	113	2.27	28	20	1.40	77	20	3.85	2,994	914	3.28
VII	Boys	533	92	5.79	275	80	3.44	337	74	4.55	147	25	5.88	4,943	1,115	4.43
	Girls	271	62	4.37	199	101	1.97	145	38	3.82	114	32	3.56	3,450	1,161	2.97
VIII	Boys	291	92	3.16	251	61	4.11	89	90	0.99	170	37	4.59	2,839	828	3.44
	Girls	190	81	2.35	211	119	1.77	150	70	2.14	134	36	3.72	2,365	963	2.46
$\sum$ fx	Boys	2,355			Boys 2,016			Boys 968			Boys 804			Boys 26,766		
$\sum$ N		523			663			299			222			6,566		
$\bar{x}$		4.50			3.04			3.24			3.62			4.08		
$\sum$ fx	Girls	1,591			Girls 1,798			Girls 718			Girls 786			Girls 20,238		
$\sum$ N		485			882			249			249			6,802		
$\bar{x}$		3.28			2.04			2.88			3.16			3.00		

$\sum$ fx	$\sum$ N	$\bar{x}$
47,004		
	13,368	
		3.52

a. In sixty-two out of seventy of the individual province-grade comparisons between the boys and the girls, the girls made fewer errors than the boys.

b. The eight areas in which the boys made fewer errors than the girls were:

Grade II, in three provinces (Province C, Province H, Province J).

Grade III, in two provinces (Province C, Province J).

Grade IV, in two provinces (Province I, Province J).

Grade VIII, in one province (Province I).

IV. CONCLUSIONS

1. Canadian boys misspell a greater number of words than do Canadian girls.

2. Canadian girls made significantly fewer spelling errors than Canadian boys did. This difference was significant at the .01 level and could not be explained as a chance difference. (t-test)

CHAPTER V

QUALITATIVE DIFFERENCES

The following statements show how the "qualitative" sex differences were investigated for Canadian children.

I. POPULATION

1. The students chosen were from Grade II to Grade V in all ten provinces of Canada.

2. Because of the amount of work and the detailed nature of the work, the student population sampled, both for the "qualitative" study and the Canadian demon study, was cut off at the Grade V level.

3. Table IV shows the population for the "qualitative" analysis. (Students from Grades II to V in Canada).

II. PLAN OF THE STUDY

1. The free writing compositions were marked for spelling errors and the errors were printed, in alphabetical order, as made, on the tally sheets.

2. On boys' and on girls' tally sheets the spelling error and its frequency was recorded for each grade in each province.

3. These tally sheets were arranged and filed by sex, by grade, and by province.

TABLE IV

POPULATION BY GRADE AND BY SEX
FOR QUALITATIVE STUDY

Grade	Boys	Girls
II	936	900
III	832	878
IV	973	976
V	966	1,010
Totals	3,707	3,764

4. Separate tally sheets were constructed to list the spelling errors by qualitative categories, according to the symbols used by Rinsland.[1]

5. Each spelling error was given a numerical "qualitative value". This value was based on the Rinsland[2] study. Rinsland[3] chose a symbol to indicate the frequency of word usage in his study of the vocabulary of elementary school children. The symbols used by Rinsland[4] were assigned by the author to each of the spelling errors to give them a numerical "qualitative value." The less frequently a word was used in a grade level, the higher would be its "qualitative value" as a spelling error.

6. Rinsland[5] grouped words by hundreds, five hundreds, and thousands according to their frequency of word usage. The first five thousand groups of words

---

[1]Henry D. Rinsland, A Basic Vocabulary of Elementary School Children (New York: Macmillan Co., 1945), p. 13.

[2]Ibid., p. 14.

[3]Ibid., pp. 14-15.

[4]Ibid., pp. 14-15.

[5]Ibid., pp. 14-15.

were subdivided into two five-hundred groups.

The first thousand group was not only subdivided into two groups of five hundreds but these two groups of five hundreds were in turn subdivided into groups of one hundreds.

These groupings were given symbols. The first part of the symbol, a number, indicates the thousand grouping. The second part of the symbol, the letters 'a' or 'b', indicates the first or second five-hundred group in that thousand grouping. The third part of the symbol, a number, indicates the hundred group within that five-hundred grouping and is used only in the first thousand group of the most frequently used words in each grade level.

Table V shows the group symbols and their meanings.

7. A comparison was then made of the sexes as to the extensiveness of the vocabulary in which spelling errors are made. This comparison indicates the "quality" of the words used by the boys and the "quality" of the words used by the girls.

TABLE V

GROUP SYMBOLS AND THEIR MEANINGS

Approximate Group	Group Symbol	Meaning-Reading From Left to Right
First 100	1a1 (continue to 1a5)	The first 100 of the first 500 of the first 1,000 (and up to the first 500).
Second 500	1b1 (continue to 1b5)	The first 100 of the second 500 of the first 1,000 meaning the sixth 100 (and up to the first 1,000).
First Half of the Second 1,000	2a (continue to 5b)	The first half of the second 1,000 (and up to all of the fifth 1,000).
Sixth Thousand	6 (continue to 9)	The sixth 1,000 (and up to the first nine 1,000).

III. FINDINGS

1. Table VI shows the quantity of spelling errors made in Grades II to V.

The facts found in Table VI are the following:

a. In Grades II to V - 3,707 boys made 14,682 spelling errors.

b. In Grades II to V - 3,764 girls made 11,210 spelling errors.

2. Table VII indicates the total number of spelling errors tallied for each Rinsland[6] grouping for boys and for girls in each grade from Grades II to V. Those errors not found in the Rinsland word list are also recorded in Table VII under the column heading "unregistered words."

The following facts are shown in Table VII:

a. The numbers of spelling errors tallied by sex, in each Rinsland[8] group for Grades II to V.

b. The totals of the spelling errors tallied for each sex in each of Grades II to V.

c. The totals of unregistered errors for each sex in Grades II to V.

---

[6] Ibid., pp. 14-15.

[7] Ibid., pp. 14-15.

[8] Ibid., pp. 14-15.

TABLE VI

THE NUMBER OF MISSPELLED WORDS
BY SEX, IN GRADES II TO V

	BOYS		GIRLS	
Grade	Number of Pupils	Number of Errors	Number of Pupils	Number of Errors
II	936	2,704	900	1,981
III	832	3,321	878	3,062
IV	973	4,517	976	3,215
V	966	4,140	1,010	2,952
Totals	3,707	14,682	3,764	11,210

TABLE VII

THE DISTRIBUTION OF SPELLING ERRORS BY GRADE AND BY SEX ACCORDING TO THE SYMBOLS BASED ON THE RINSLAND* WORD LIST

Rinsland Groupings	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1a1	597	388	665	666	759	558	731	492
1a2	330	244	317	285	480	356	384	271
1a3	211	156	242	258	233	173	153	156
1a4	173	140	150	142	277	179	166	121
1a5	132	107	130	131	168	102	176	131
1b1	132	103	126	123	220	164	151	97
1b2	130	82	93	90	121	79	121	93
1b3	66	55	88	70	87	98	89	76
1b4	81	49	81	96	107	64	81	56
1b5	62	40	87	67	74	57	69	48
2a	190	183	276	241	358	278	381	273
2b	173	128	189	196	263	186	236	159
3a	80	71	140	113	186	158	210	140
3b	72	51	113	109	139	101	149	102
4a	47	54	88	74	113	79	148	94
4b	0	0	81	82	116	75	109	75
5a	0	0	70	51	70	53	55	54
5b	0	0	35	42	59	40	65	55
6	0	0	58	25	101	52	95	57
7	0	0	0	0	103	60	1	0
Totals	2,476	1,851	3,029	2,861	4,034	2,912	3,570	2,550
Unregistered Words	228	130	292	201	483	303	570	402
Totals	2,704	1,981	3,321	3,062	4,517	3,215	4,140	2,952

* These symbols are found in the Rinsland study, pp. 14-15

3. The numbers of errors made by each sex in each Rinsland group found in Table VII were then compared by using the Chi-square test of independence.[9] The "quality" of the spelling errors made by the boys was compared with the "quality" of the spelling errors made by the girls when this Chi-square test was applied. (See Table VIII, page 52).

4. When one examines Table VIII the following facts become evident:

a. In Grade II χ^2 = 21,384 and for 14 degrees of freedom P is less than 0.10. χ^2 is therefore not significant and there is no evidence that there is a true sex difference in the "quality" of the words misspelled at this grade level.

b. In Grade III χ^2 = 27,138 and for 18 degrees of freedom P is less than 0.10. χ^2 is therefore not significant and there is no evidence that there is a true sex difference in the "quality" of the words misspelled at the Grade III level.

c. In Grade IV χ^2 = 17,840 and for 19 degrees of freedom P is greater than 0.50. χ^2 is therefore not significant and there is no true sex difference in the

---

[9] Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Company, 1954), p. 263.

TABLE VIII

THE RESULTS OF THE CHI-SQUARE TEST WHEN APPLIED TO THE DISTRIBUTION OF SPELLING ERRORS FOUND IN TABLE VII

Grade	χ^2	df	P	Significance
II	21,384	14	$P<.10$	No Significant Difference
III	27,138	18	$P<.10$	No Significant Difference
IV	17,840	19	$P>.50$	No Significant Difference
V	19,916	19	$P>.30$	No Significant Difference

"quality" of the words misspelled at this grade level.

d. In Grade V χ^2 = 19,916 and for 19 degrees of freedom P is greater than 0.30. χ^2 is therefore not significant and there is no true sex difference in the "quality" of the words misspelled at the Grade V level.

5. The numbers of spelling errors made by each sex in the unregistered word groups as shown in Table VII, page 50, were also compared by using the Chi-square test of independence. The number of spelling errors made by each sex in unregistered words was thus compared by using this Chi-square test. (See Table IX, page 54).

6. When the reader examines Table IX the following facts become evident.

a. In Grade II χ^2 = 5.469 and for 1 degree of freedom P is less than 0.02. χ^2 is therefore significant and there is a true sex difference which shows the boys to be superior.

b. In Grade III χ^2 = 11.317 and for 1 degree of freedom P is less than 0.01. χ^2 is therefore significant and there is a true sex difference which shows the boys to be superior.

c. In Grade IV χ^2 = 3.305 and for 1 degree of freedom P is less than 0.10. χ^2 is therefore not significant and there is no true sex difference.

TABLE IX

THE RESULTS OF THE CHI-SQUARE TEST WHEN APPLIED TO THE DISTRIBUTION OF SPELLING ERRORS, IN THE UNREGISTERED WORD GROUPS AS FOUND IN TABLE VII

Grade	χ^2	df	P	Significance
II	5.469	1	P<.02	Significantly Different
III	11.317	1	P<.01	Significantly Different
IV	3.305	1	P<.10	No Significant Difference
V	0.027	1	P<.90	No Significant Difference

d. In Grade V χ^2 = 0.027 and for 1 degree of freedom P is less than 0.90. χ^2 is therefore not significant and there is no true sex difference.

7. The percentages for the numbers of spelling errors found in each Rinsland grouping (Table VII, page 50) were computed and are shown in Table X, page 56.

8. Graphic representations of the facts found in Table X are shown in Figures 1, 2, 3, and 4 for Grades II to V. (See pages 57 to 60).

9. Table XI, page 61, indicates the total Chi-square for the unregistered words misspelled in Grades II to V. When Table XI is examined the following fact becomes evident:

a. In Grades II to V χ^2 = 20.118 and for 4 degrees of freedom P is less than 0.01. Thus there is a true sex difference which shows the boys to be significantly superior.

10. A comparison was made between the percentage of unregistered words misspelled by each sex in Grades II to V. Table XII, page 62, shows the percentages found from the numbers of spelling errors the students made on words not used frequently enough to be recorded in the Rinsland study. (Unregistered words).

TABLE X

PERCENTAGES OF SPELLING ERRORS IN EACH RINSLAND* GROUPING FOR BOYS AND FOR GIRLS IN GRADES II TO V

(Rinsland) Groups	Grade II		Grade III		Grade IV		Grade V	
1a	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1a1	22.08	19.59	20.02	21.75	16.80	17.36	17.66	16.67
1a2	12.20	12.32	9.55	9.31	10.63	11.07	9.28	9.18
1a3	7.80	7.87	7.29	8.43	5.16	5.38	3.70	5.28
1a4	6.40	7.07	4.52	4.64	6.13	5.57	4.01	4.10
1a5	4.88	5.40	3.91	4.28	3.72	3.17	4.25	4.44
1b1	4.88	5.20	3.79	4.02	4.87	5.10	3.65	3.29
1b2	4.81	4.14	2.80	2.94	2.68	2.46	2.95	3.15
1b3	2.44	2.78	2.65	2.29	1.93	3.05	2.15	2.57
1b4	3.00	2.47	2.44	3.14	2.37	2.00	1.96	1.90
1b5	2.29	2.02	2.62	2.19	1.64	1.77	1.67	1.63
2a	7.03	9.24	8.31	7.87	7.93	8.65	9.20	9.25
2b	6.40	6.46	5.69	6.40	5.82	5.79	5.70	5.39
3a	2.96	3.58	4.22	3.69	4.12	4.91	5.07	4.74
3b	2.66	2.57	3.40	3.56	3.08	3.14	3.60	3.46
4a	1.74	2.73	2.65	2.42	2.50	2.46	3.57	3.18
4b			2.44	2.68	2.57	2.33	2.63	2.54
5a			2.11	1.67	1.55	1.65	1.33	1.83
5b			1.05	1.37	1.31	1.24	1.57	1.86
6			1.75	0.82	2.24	1.61	2.29	1.93
7					2.28	1.87	0.24	0.00
Unregistered Words	8.43	6.56	8.79	6.56	10.69	9.42	13.77	13.62
	100.00	100.00	100.00	100.03	100.02	100.00	100.22	100.01

* These groups are found in the Rinsland Study, pp. 14-15.

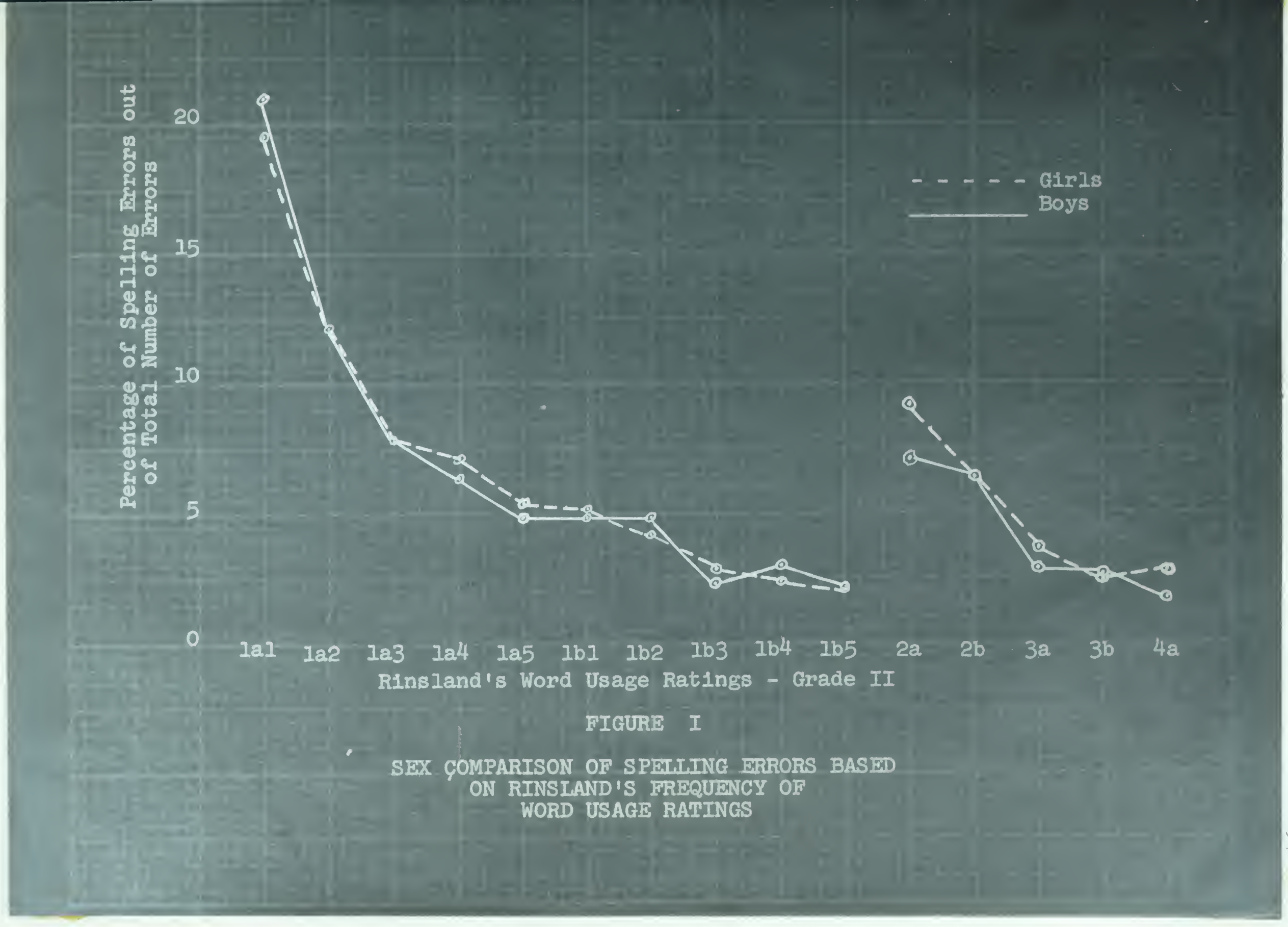

FIGURE I

SEX COMPARISON OF SPELLING ERRORS BASED ON RINSLAND'S FREQUENCY OF WORD USAGE RATINGS

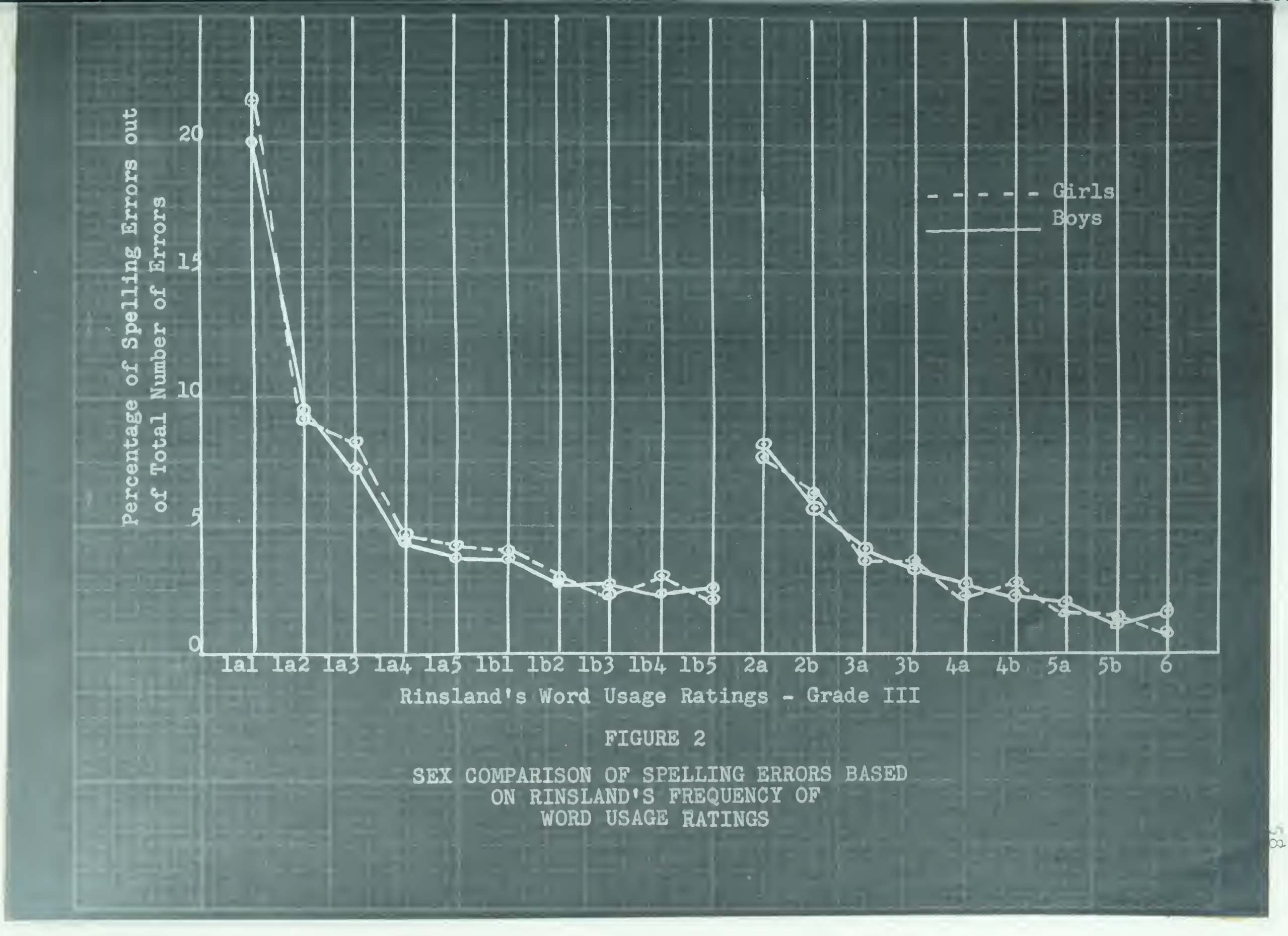
Percentage of Spelling Errors out of Total Number of Errors
20
15
10
5
0
- - - - - - Girls
Boys
1a1 1a2 1a3 1a4 1a5 1b1 1b2 1b3 1b4 1b5 2a 2b 3a 3b 4a 4b 5a 5b 6
Rinsland's Word Usage Ratings - Grade III

FIGURE 2

SEX COMPARISON OF SPELLING ERRORS BASED
ON RINSLAND'S FREQUENCY OF
WORD USAGE RATINGS

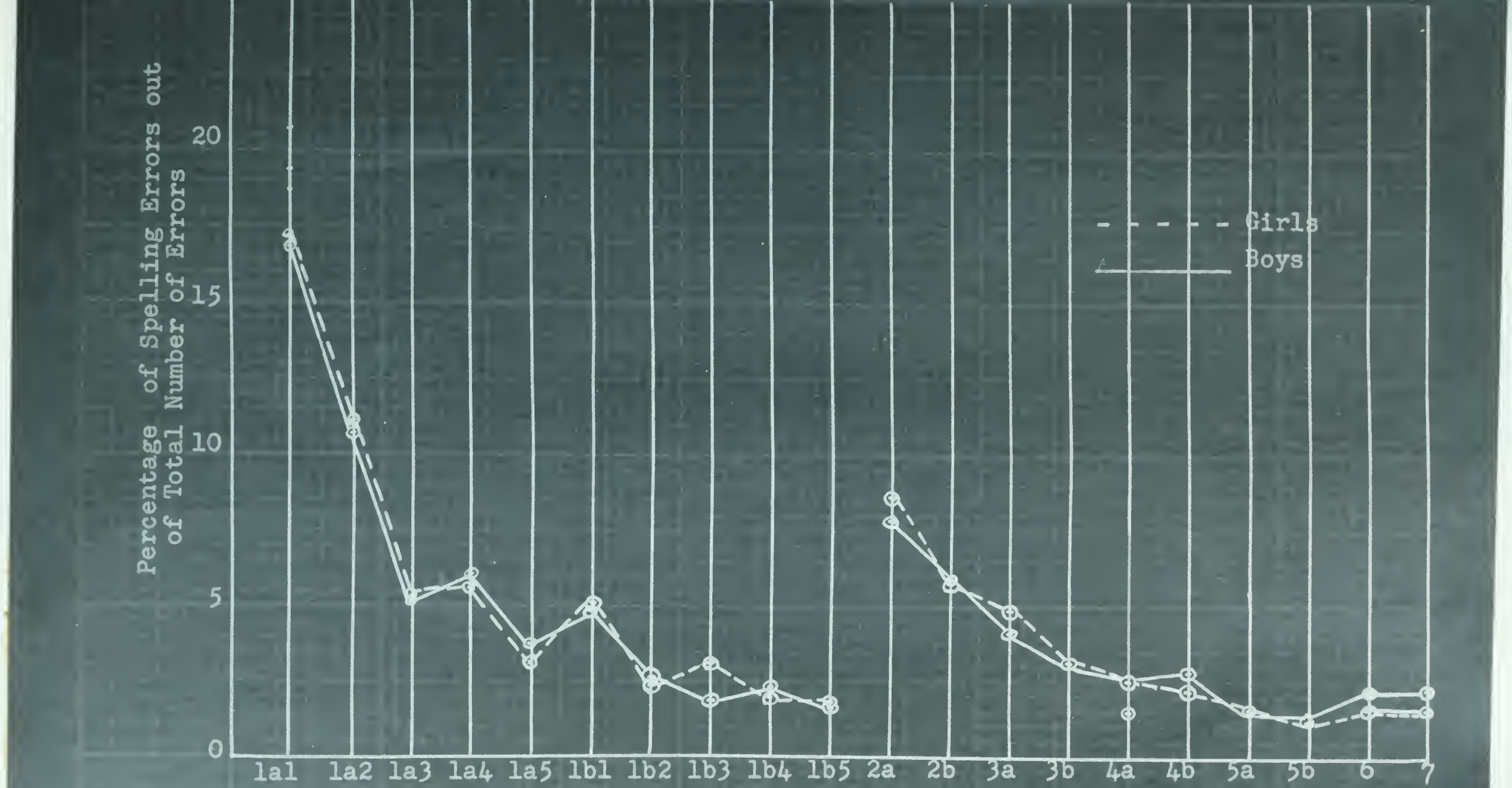
Percentage of Spelling Errors out of Total Number of Errors
20
15
10
5
0
- - - - - Girls
Boys
1a1 1a2 1a3 1a4 1a5 1b1 1b2 1b3 1b4 1b5 2a 2b 3a 3b 4a 4b 5a 5b 6 7
Rinsland's Word Usage Ratings - Grade IV

FIGURE 3

SEX COMPARISON OF SPELLING ERRORS BASED ON RINSLAND'S FREQUENCY OF WORD USAGE RATINGS

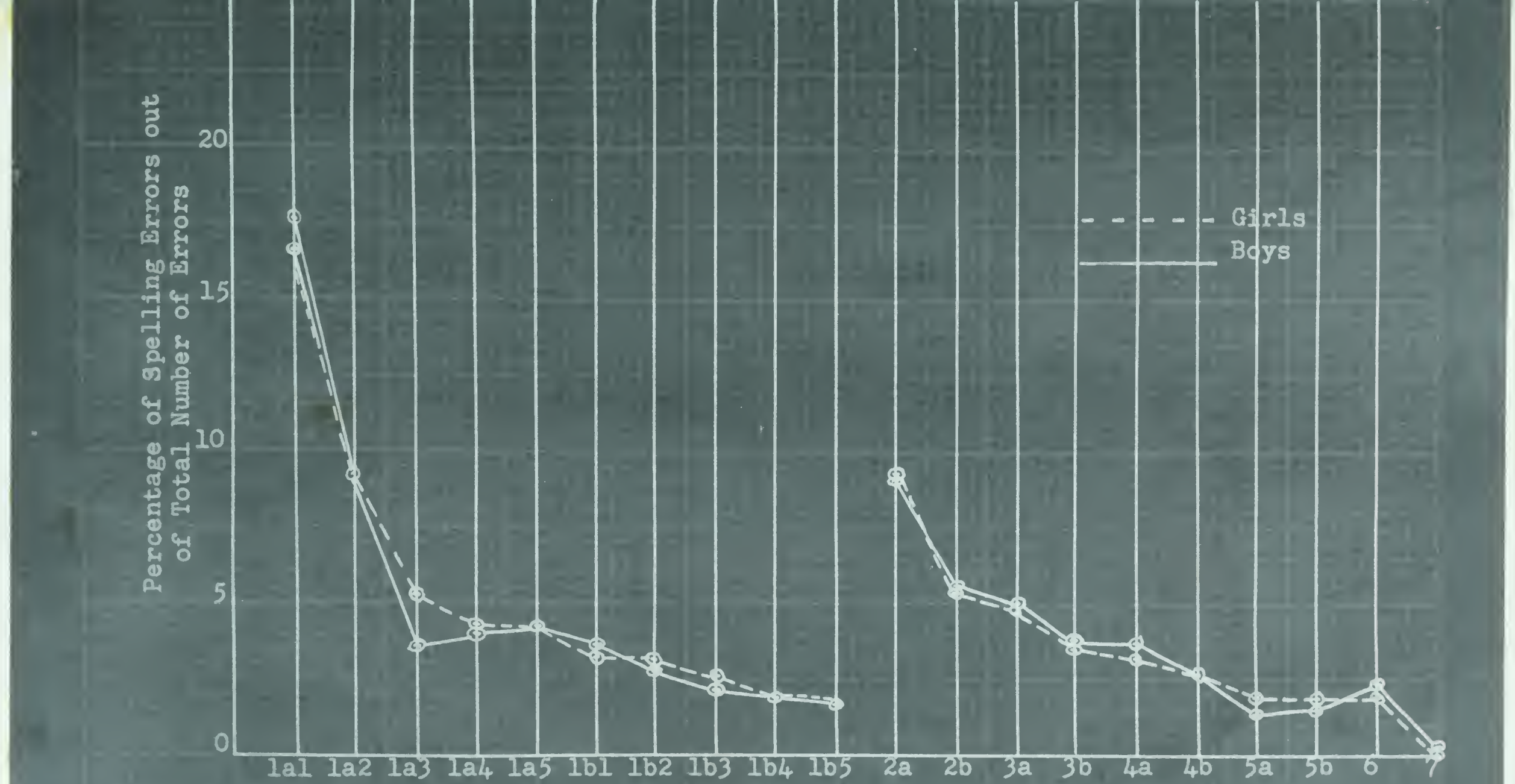
Percentage of Spelling Errors out of Total Number of Errors
20
15
10
5
0
Girls
Boys
1a1 1a2 1a3 1a4 1a5 1b1 1b2 1b3 1b4 1b5 2a 2b 3a 3b 4a 4b 5a 5b 6 7
Rinsland's Word Usage Ratings - Grade V

FIGURE 4

SEX COMPARISON OF SPELLING ERRORS BASED ON RINSLAND'S FREQUENCY OF WORD USAGE RATINGS

TABLE XI

THE SUM OF THE CHI-SQUARES APPLIED TO
GRADES II TO V UNREGISTERED
WORDS MISSPELLED

Grade	χ^2	df	P	Significance
II	5.469	1		
III	11.317	1		
IV	3.305	1		
V	0.027	1		
Totals	20.118	4	$P<.01$	Significantly Different

TABLE XII

COMPARISON OF UNREGISTERED ERRORS
TALLIED FOR EACH SEX IN
GRADES II TO V

Grade		Actual Number of Errors not Recorded on Rinsland List	Total Number of Errors	Percentages of Unregistered Errors	Differences
II	Boys	228	2,704	8.43	+ 1.87
	Girls	130	1,981	6.56	
III	Boys	292	3,321	8.79	+ 2.23
	Girls	201	3,062	6.56	
IV	Boys	483	4,517	10.69	+ 1.26
	Girls	303	3,215	9.43	
V	Boys	570	4,140	13.77	+ 0.15
	Girls	402	2,952	13.62	
II-V Combined	Boys	1,573	14,682	10.71	+ 1.52
	Girls	1,036	11,210	9.24	

IV. CONCLUSIONS

In Grades II to V in Canada there is no significant difference between the "quality" of the words boys misspell and the "quality" of the words girls misspell.

In Grades II to V there is a significant difference, which favors the boys, between the number of unregistered words misspelled by the boys and the number of unregistered words misspelled by the girls. This difference is significant at the 0.01 level. (See Table XI, page 61).

CHAPTER VI

CANADIAN SPELLING DEMONS

The investigator shows in the following statements how a Canadian demon spelling list was constructed and then correlated with the same demons used in dictated spelling tests.

I. POPULATION

1. Table XIII indicates (1) the student population from whose compositions the Canadian demons were tallied; (2) the population to which the dictated tests were given.

2. The spelling demons were tallied from students' spelling errors made on free writing compositions in Grades II to V from every province in Canada.

3. Classes were selected from Jasper Place School District (urban) and Clover Bar School Division (rural), Grades II to V. These classes were given dictated spelling tests, based on the demons found in the free writing compositions. (There were five or six tests given per grade).

4. The number of students who took the dictated spelling tests was two hundred and fifty or more in each of Grades II to V. (There were eight classes or more for each grade).

TABLE XIII

DEMON TALLY POPULATION AND
DICTATED TEST POPULATION

Grade	Demon Tally Population	Dictated Test Population
II	1,836	292
III	1,710	250
IV	1,949	258
V	1,976	269
Totals	7,471	1,069

II. PLAN OF THE STUDY

1. The spelling errors, numbering 26,278 as tallied from the free writing compositions of students in Grades II to V, were used as the source of data from which this Canadian spelling demon list was derived.

2. A composite list of the commonly known demon lists by Jones[1], Gates[2], and Fitzgerald[3] formed the basic list for the tallying of the Canadian demon list. The demons from the three common lists mentioned above were arranged into one basic list, in alphabetical order.

3. Any word which was misspelled six times or more by either the boys or the girls in a certain grade was considered a Canadian demon. This criterion was chosen because it would select approximately two hundred and fifty demons, which comes close to the average number of demon words found in other common demon lists.

---

[1]W. Franklin Jones, Concrete Investigation of the Material of English Spelling (Vermillion, South Dakota; University of South Dakota, 1913), pp. 29.

[2]Gates, and Others, Pupils' Own Vocabulary Spellers, Grades VII-VIII, (Toronto: Macmillan Co. of Canada, Ltd., 1951), pp. 95-97.

[3]James A. Fitzgerald, A Basic Life Spelling Vocabulary (Milwaukee: Bruce Publishing Co., 1951), pp. 143-149.

4. As the tallying of the demon words progressed, it became evident that the basic list was not complete enough to select all the Canadian demon words, so spelling errors were added to this basic list when they occurred frequently enough to be classed as demon words for that grade level.

5. Some words classed as demons on the basic list did not occur frequently enough, as spelling errors, to be considered Canadian demons and so these words were deleted from the basic list. (See Appendix D)

6. By using the above procedure a final Canadian demon word list was tabulated, which listed all the spelling errors that occurred six times or more, for boys and for girls in Grades II to V in Canada.

7. This Canadian demon word list shows the error counts by sex and by grade. This list is illustrated in Table XIV.

8. The Canadian demon words, tallied by sex and by grade, were then arranged into spelling tests which were dictated by teachers to the appropriate grade levels. Five or six tests of twenty to thirty words each were constructed for each grade from Grades II to V.

9. The dictated tests were marked and error counts for each word were found. These error counts were changed to percentages.

10. A correlation was then computed between the raw scores of the demon words as tallied from the free writings and the percentage scores that were found for these demons on the dictated tests.

III. FINDINGS

1. Table XIV indicates the lists of demons found for each sex in each grade from Grades II to V.

The symbol xx in the table means that the demon word was not found on the common demon lists, and is therefore considered a new Canadian demon word.

2. From Table XIV the reader may clearly see the following:

(i) In Grades II to V in Canada two hundred and forty-eight demons occurred as spelling errors with a frequency of six or more times for either the boys or the girls in one or more of the Grades II to V.

(ii) In Grades II to V ninety-seven demons occurred which were not found on the other common lists. These words may appropriately be called new Canadian demons.

(iii) Many words which were considered demons on the common demon lists, did not occur frequently enough to be considered demons for this list. (See Appendix D)

TABLE XIV

DEMON ERROR COUNTS BY SEX IN GRADES II TO V

	Word	Grade II		Grade III		Grade IV		Grade V	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	about					6	6		
xx	after	8	1						
	again			19	14	19	19	12	6
	along			1	6				
	always	11	9	7	3	6	7		
	am					9	2		
	an							0	6
	and	27	6	15	23	29	11	33	17
xx	animals			7	6	4	11		
xx	another			2	15	10	7		
	are							2	7
xx	around	8	3	7	2				
xx	at					7	7		
	aunt			3	13			1	8
	baby	2	8						
xx	back			8	4			8	2
xx	ball	8	2						
xx	beautiful			2	15	10	13	13	12
	because	20	15	17	22	10	12	14	8
	been					6	1	7	1
	before	7	5	9	6	8	7		
	believe							0	9

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
xx bicycles							6	4
xx biggest							6	3
xx black	7	5	0	6				
boy					1	6		
boys					6	1		
break	6	1 -					9	2
xx breakfast	0	7 -			6	1		
xx broke			6	6				
brother	12	9	4	10	7	10		
brought					8	2		
xx build	11	1	7	6	11	2		
xx but			14	5	8	3		
buy					5	6		
xx by					6	5		
came	9	4	9	6			3	6
xx catch			9	2			6	0
xx caught	16	8	21	15	20	6	16	5
xx chased			7	3			6	0
children			2	6				
xx circus							8	7
xx climb	7	2	3	8				

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
clothes			6	6	1	10		
colour			2	9				
coming	9	5			3	12	13	18
could			14	6	10	1		
couldn't			9	5	6	6		
course					8	2		
cousin			3	20	11	3	9	7
decided			7	6	6	5	4	11
didn't	11	8	12	8	10	3		
does			7	2				
doesn't					2	8		
dog	16	2						
xx dollars	1	6			7	5		
don't	7	6						
down			4	6	7	3	7	5
xx enemies							6	3
enough							6	2
xx ever	6	2						
every	8	7	8	6			8	2
xx except					4	7	6	2
xx excite			4	6	8	10	3	13
xx fairy			1	13				

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
xx family			7	8	6	1		
xx farm	8	3	8	1				
father	8	2						
xx favorite					3	8		
xx field	8	1					13	5
xx fight			6	2				
finally			5	10	13	19	21	17
xxfinished			2	6	8	7		
first			13	15	13	8	6	4
xx follow					8	5		
xx for	8	2			3	9	11	3
friend	12	6	9	11	13	11	24	18
friends	8	12	7	11	5	6		
from			6	4	6	7		
fun	1	6 -						
xx game	6	2						
getting	7	2	7	3	9	1	11	4
xx ghost	8	1	3	7	6	10	10	4
xx girl			2	7	4	10	1	9
goes	7	12						
going					6	3		
goodbye	8	8						

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
got	6	3	14	10	12	6	1	6
guess							6	1
half					6	4		
xx happened			6	12			5	6
xx happily			16	21	5	11	5	6
have	7	2			5	6		
heard	4	7	6	11	18	9		
her					1	7	0	7
xx herd					6	1		
here			4	8	10	2	3	8
him	9	5	10	15	14	23		
his	8	6	8	3				
xx hockey	6	0 -					7	0
xx holiday	8	4	2	6	9	6	11	5
xx horse			6	14	25	7	4	16
hospital	5	7			9	7		
house	7	7	6	9	10	2		
I'm					10	6	5	6
in					6	2		
interesting					11	3		
it					6	10		
its			7	10	15	7	16	11

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
it's	6	4			11	8	17	9
xx jump	13	9	14	2				
xx jumped			3	6				
just					8	4		
knew			8	13	18	13	7	10
xx knock			7	6	6	1	5	6
know	10	9	8	10	20	12	15	8
laid			1	8				
xx laugh	7	9	1	6				
xx let's			7	4	18	7	20	21
likes	7	5	5	20				
little	4	13			11	6		
lots	6	5						
made			4	6				
xx magic					7	4		
xx married			3	8				
me	9	1						
xx might					6	1		
minute					7	6	13	3
xx missed					6	1		
xx money					10	1		
xx month					8	2		

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
morning			13	14	10	14	11	4
mother			7	2				
xx motor					10	2	8	0
xx mountain	1	6 -	12	4			9	4
much	2	6						
my			2	7				
name	9	6	13	17	6	7	7	6
xx neighbor					1	6		
xx next					7	7	6	1
nice					1	7		
xx no					4	6	7	6
now					8	1	6	4
o'clock	12	11			13	9	14	13
xx of	9	3	6	6			9	2
off	6	7	18	17	44	23	45	29
on	2	6	4	6	8	1		
once	12	9	17	17	7	8	6	2
one					7	4	8	5
xx only					7	0		
xx other			6	2	8	5	6	2
our	7	8	17	19	13	7	14	3
xx over	10	2						

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
xx own	2	6						
party			7	1				
people	11	4	8	2				
xx picnic	1	6 -						
xx picture							12	1
piece					9	10	7	3
xx planets							11	1
play	4	8						
plays	5	6						
xx porridge					11	3	2	17
xx present					8	6		
pretty	9	4					3	7
quiet							2	7
quite					7	3	7	5
really					11	10		
remember					9	7	10	1
xx rifle					6	0		
said	12	10	12	9	23	15		
xx scared			6	16	8	11		
saw	7	7						
xx scientist					9	0		
xx second			6	7				

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
sincerely					7	4	7	3
xx skating	3	6						
xx sleep	0	6						
some	14	4			4	6	9	7
something					8	2		
sometimes			4	8			6	4
xx started			13	9	21	5	10	3
xx station			2	8				
xx stopped	7	4	10	8	21	18	14	10
studying					6	2		
xx suddenly			1	6	9	2		
summer	9	5						
suppose					7	6	4	10
surprise	9	0			4	7	3	13
swimming	10	11	14	13	17	12	18	14
xx take					3	6		
xx taking	4	6						
xx than					1	6		
that's			13	14	10	17	14	20
their	21	25	40	42	60	38	45	48
them			19	10	15	12	10	4

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
then	14	14	10	31	25	26	31	23
there	29	17	32	33	49	37	45	37
they're							12	6
xx things			7	1				
think					8	5		
thought			4	10	10	16	7	10
through	8	4	14	5	24	25	14	9
tired							4	6
to	16	14	8	15	18	7	21	11
xx toboggan							11	5
xx told			6	1	11	3		
too	59	16	67	72	87	66	76	71
xx took			6	3	8	8		
train	8	2						
xx treasure					7	2		
xx tricks	3	6						
xx tried	6	3	9	3	10	4	1	8
truly					11	12	4	6
two	27	8	24	11	21	22	9	12

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
uncle			6	3				
until			7	2	9	6	9	10
xx upon	8	9	20	21	23	17	10	11
usually					6	5	5	10
xx valentine	2	10						
very	13	11	15	10	7	11		
want	8	2	12	11	9	6		
was	10	5	7	5			2	7
xx watch	3	6	3	8	11	4		
xx water			2	6				
we	8	1						
wear			0	8				
went	18	6	21	16	42	22	18	22
were	9	13	13	26	18	15	32	33
we're						9	6	6
when	20	7	45	35	17	10	16	10
where			9	14	26	21	21	22
which					6	7	6	2

TABLE XIV (continued)

Word	Grade II		Grade III		Grade IV		Grade V	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
which					6	7	6	2
xx while			12	10	15	7		
white	9	6						
xx who	7	2						
xx whose					0	7		
wiener					1	7		
will	3	6			7	6		
with	31	16	18	22	14	6	5	6
whole							7	0
would	14	2	14	16				
write							1	6
you			6	6				
your							6	1
you're					6	2	6	9
yours							2	8

Note: The number of (xx) words is 97.

3. The frequency, with which each dictated demon was misspelled, was recorded in Table XV, pages 82 to 91. Also the percentage of students misspelling each dictated demon was found and is shown in Table XV.

4. A correlation was computed between the raw scores of the demon tallies from the free writing and the percentage scores that were found for these demons given in dictated tests. Table XVI, page 92, gives these correlations.

IV. CONCLUSIONS

1. A Canadian demon list was constructed containing two hundred and forty-eight demons which had occurred six times or more for either boys or girls in their free writing.

2. Of the two hundred and forty-eight demons in this list, ninety-seven were not found on the common demon lists. This fact would seem to suggest that these ninety-seven demons are spelling words which are more frequently misspelled by Canadian children than American children on whose spelling the lists were based.

3. In Grades II to V the coefficients of correlation found between raw scores of free writing demons and percentage scores of the dictated demons are not significant for any one of the four grades in Canada.

TABLE XV

FREQUENCY OF ERRORS AND PERCENTAGE OF ERRORS

GRADE II

Test #1. N = 292			Test #2. N = 290		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
always	187	64	got	22	8
and	6	2	have	18	6
baby	45	15	heard	225	78
because	183	63	him	12	4
before	164	56	his	21	7
break	270	92	hospital	264	91
brother	100	34	house	53	18
came	18	6	it's	136	47
coming	86	29	likes	71	24
didn't	164	56	little	23	8
dog	25	9	lots	117	40
don't	131	45	me	9	3
every	163	56	know	97	33
father	46	16	much	77	27
friend	197	67	name	23	8
friends	206	71	o'clock	115	40
fun	18	6	off	63	22
getting	171	59	on	20	7
goes	107	37	once	181	62
goodbye	130	45	our	78	25
Test #3. N = 292					
people	215	74	swimming	234	80
play	7	2	their	198	68
plays	58	20	then	37	13
pretty	60	21	there	138	47
said	87	30	they	95	33
saw	16	5	through	262	90
some	47	16	to	90	31
summer	118	40	too	114	39
surprise	240	82	train	99	34
			two	51	17
			very	114	39

TABLE XV (continued)

GRADE II

Test #4. N - 295			Test #5. N - 288		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
want	57	19	farm	65	23
was	31	11	field	250	87
we	6	2	for	20	7
went	35	12	game	29	10
were	79	27	ghost	278	97
when	86	29	hockey	227	79
white	92	31	holiday	250	87
will	28	9	jump	74	26
with	67	23	laugh	222	77
would	104	35	mountain	266	92
after	58	20	of	62	22
around	96	33	over	69	24
ball	19	6	own	163	57
black	27	9	picnic	194	67
breakfast	243	82	skating	181	63
build	262	89	sleep	48	17
caught	276	94	stopped	175	61
climb	234	79	taking	146	51
dollars	248	84	tricks	152	53
ever	118	40	tried	196	68
			upon	153	53
			valentine	261	91
			watch	153	53
			who	113	39

TABLE XV (continued)

GRADE III

Test #1. N = 253			Test #2. N = 248		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
again	97	38	finally	196	80
along	21	8	first	63	25
always	32	13	friend	112	45
and	5	2	friends	112	45
aunt	152	60	from	24	10
because	106	42	getting	86	35
before	86	34	got	6	2
brother	42	17	heard	105	42
children	36	14	here	73	29
clothes	126	50	him	7	3
colour	65	26	his	7	3
came	12	5	house	24	10
could	57	23	its	124	50
couldn't	98	39	laid	182	73
cousin	182	72	likes	32	13
decided	176	70	know	37	15
didn't	59	23	made	39	16
does	122	48	morning	30	12
down	10	4	mother	19	8
every	59	23	knew	83	33
Test #3. N = 246					
my	6	2	that's	125	51
name	9	4	their	118	48
off	29	12	them	25	10
on	6	2	then	26	11
once	38	15	there	53	22
party	50	20	they	35	14
people	59	24	thought	91	37
said	32	13	through	173	70
sometimes	52	21	to	87	35
swimming	157	64	our	34	14

TABLE XV (continued)

GRADE III

Test #4. N = 249			Test #5. N = 256		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
too	75	30	black	9	4
two	14	6	broke	135	53
uncle	46	18	build	79	31
until	86	35	but	9	4
very	44	18	catch	27	11
want	20	8	caught	141	57
was	11	4	chased	127	50
wear	62	25	climb	77	30
went	16	6	excite	159	62
were	59	24	fairy	51	20
when	34	14	farm	26	10
where	49	20	family	108	42
with	29	12	fight	46	18
would	45	18	finished	130	51
you	2	1	ghost	192	75
animals	80	32	girl	35	14
another	56	22	happened	141	57
around	27	11	happily	172	67
back	13	5	holiday	155	61
beautiful	202	81	horse	40	16
Test #6. N = 243					
jump	24	10	started	63	26
jumped	41	17	station	147	60
knock	96	40	stopped	167	69
laugh	90	37	suddenly	147	60
let's	186	77	things	43	18
married	179	74	took	41	17
mountain	171	70	tried	105	43
of	40	16	told	42	17
other	31	13	upon	132	54
scared	127	52	water	27	11
second	92	38	watch	55	23
			while	107	44

TABLE XV (continued)

GRADE IV

Test #1. N = 262			Test #2. N = 265		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
about	9	3	friend	64	24
again	41	16	friends	70	26
always	29	11	from	7	3
am	14	5	getting	25	9
and	1	0	going	8	3
because	38	15	got	2	1
been	84	32	half	25	9
before	52	20	have	6	2
boy	0	0	heard	70	26
boys	34	13	her	4	2
brother	26	10	here	52	20
brought	63	24	him	5	2
buy	23	9	hospital	114	43
clothes	71	27	house	12	5
coming	23	9	I'm	46	17
could	15	6	in	2	1
couldn't	39	15	interesting	50	19
course	172	66	it	1	0
cousin	96	37	it's	130	49
decided	145	55	its	190	72
didn't	19	7	just	18	7
doesn't	140	53	know	46	17
down	12	5	little	7	3
finally	73	73	minute	89	34
first	48	18	knew	74	28

TABLE XV (continued)

GRADE IV

Test #3. N = 259			Test #4. N = 256		
Word	Frequency of Errors	Percentages Of Errors	Word	Frequency of Errors	Percentages of Errors
morning	28	11	then	9	4
name	2	1	there	18	7
nice	19	7	they	13	5
now	6	2	think	11	4
o'clock	18	7	thought	54	21
off	16	6	through	82	32
on	1	0	to	48	19
once	27	10	too	55	21
one	3	1	truly	142	55
piece	123	47	two	7	3
quite	115	44	until	68	27
really	112	47	usually	220	86
remember	64	25	very	34	13
said	17	7	want	26	10
sincerely	218	84	went	16	6
some	8	3	we're	129	50
something	29	11	were	59	23
studying	120	46	when	17	7
suppose	186	72	where	39	15
surprise	131	51	which	57	22
swimming	44	17	wiener	229	89
that's	108	42	will	16	6
their	77	30	with	11	4
them	5	2	you're	167	65
our	22	8	animals	39	15

TABLE XV (continued)

GRADE IV

Test #5. N = 257			Test #6. N = 254		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
another	32	12	might	56	22
at	0	0	missed	123	48
beautiful	134	52	money	32	13
breakfast	80	31	month	76	30
built	37	14	motor	158	62
but	10	4	neighbor	161	63
by	14	5	next	39	15
caught	95	37	no	52	20
dollars	37	14	only	27	11
except	143	56	other	24	9
excite	154	60	porridge	214	84
family	59	23	present	130	51
favorite	185	72	rifle	102	40
finished	101	39	scared	121	48
follow	39	15	scientist	212	83
for	20	8	started	40	16
ghost	165	64	stopped	116	46
girl	22	9	suddenly	133	52
happily	123	48	take	20	8
herd	100	39	than	30	12
holiday	115	45	took	21	8
horse	46	18	treasure	150	59
knock	107	42	tried	96	38
let's	151	59	told	51	20
magic	72	28	upon	138	54
			watch	49	19
			while	74	29
			whose	175	70

TABLE XV (continued)

GRADE V

Test #1. N = 270			Test #2. N = 264		
Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
again	27	10	its	106	40
an	2	1	it's	81	31
and	1	0	knew	32	12
are	0	0	minute	35	13
aunt	58	21	morning	24	9
because	17	6	name	3	1
been	40	15	now	31	12
believe	113	42	o'clock	18	7
break	110	41	off	7	3
came	4	1	once	16	16
coming	38	14	one	0	0
cousin	62	23	piece	88	33
decided	54	20	pretty	42	16
down	4	1	quiet	52	22
enough	53	20	quite	70	27
every	10	4	remember	50	19
finally	138	51	sincerely	113	43
first	18	7	some	8	3
friend	47	17	sometimes	13	5
getting	23	9	suppose	142	54
got	3	1	surprise	84	32
guess	58	21	swimming	41	16
her	2	1	that's	55	21
here	52	19	know	32	12
I'm	25	9	our	21	8

TABLE XV (continued)

GRADE V

Test #3. N = 265			Test #4. N = 270		
Words	Frequency of Errors	Percentages of Errors	Words	Frequency of Errors	Percentages of Errors
their	51	19	your	15	6
them	4	2	you're	66	24
then	9	3	yours	98	36
there	22	8	back	2	1
they	2	1	beautiful	78	29
they're	100	38	bicycles	124	46
thought	22	8	biggest	47	17
through	60	23	catch	13	5
tired	60	23	caught	52	19
to	17	6	chased	68	25
truly	147	55	circus	72	27
two	6	2	enemies	153	57
until	72	27	except	80	30
usually	140	53	excite	72	27
was	2	1	field	71	26
went	10	4	for	8	3
we're	83	31	ghost	109	40
were	17	6	girl	8	3
when	1	0	happened	33	12
where	16	6	happily	95	35
which	43	16	hockey	49	18
with	10	4	holiday	45	17
too	34	13	horse	30	11
whole	50	19	knock	50	19
write	52	20	let's	125	46

TABLE XV (continued)

GRADE V

Test #5. N = 274

Word	Frequency of Errors	Percentages of Errors	Word	Frequency of Errors	Percentages of Errors
month	48	18	mountain	55	20
motor	66	24	next	20	7
of	21	8	other	6	2
picture	21	8	planets	57	21
porridge	199	73	started	15	5
stopped	73	27	toboggan	224	82
tried	39	14	upon	102	37
no	50	18			

Note: The following information is found in Table XV:

a. The number of students taking each test in each grade.

b. The frequency of errors count for each dictated demon.

c. The percentage of students who misspelled each demon.

TABLE XVI*

THE COEFFICIENT OF CORRELATION BETWEEN FREE WRITING DEMON SCORES AND DICTATED DEMON PERCENTAGE SCORES

Grade	Coefficient of Correlation	Significance
II	- .055	No Significance
III	- .047	No Significance
IV	- .100	No Significance
V	+ .138	No Significance

*This Table shows the coefficient of correlation for each grade is not significant.

CHAPTER VII

THE SUMMARY OF FINDINGS AND CONCLUSIONS

I. QUANTITATIVE STUDY

The quantitative study, when subjected to the analysis of the data, resulted in these findings and conclusions.

In a representative sample of the compositions written by the pupils in Canada the difference between the mean spelling error made by the girls and the mean spelling error made by the boys is 1.08 errors per composition. See Table III, page 40. This difference when using the t-test is significant at the .01 level.

In each of the grades from two to eight the differences between the mean error for the boys and the mean error for the girls were significant at the .01 level when the t-test was used. See Table II, page 39.

In sixty-two of the seventy province-grade areas the girls made fewer spelling errors than did the boys. In eight of the province-grade areas the boys made fewer spelling errors than did the girls.

From the above findings the following conclusion seems valid. Canadian girls misspelled significantly fewer words than did Canadian boys. This conclusion

may be qualified, however, because Canadian boys used and misspelled more infrequently-used words than did the girls. See Table XI, page 61.

II. "QUALITATIVE" STUDY

When the data for the "qualitative" study were analyzed, in the ways outlined earlier in this thesis, the following findings and conclusions resulted.

In Grades II to V the Chi-squares are not significant and there is no evidence that there is a true sex difference in the "quality" of the words misspelled at these grade levels.

The numbers of the spelling errors made by each sex in the unregistered word groups were compared by using the Chi-square test of independence. See Table IX, page 54. In Grades II and III the Chi-squares are significant and there are true sex differences which favor the boys. These differences were significant at less than the 0.02 level. In Grades IV and V the Chi-squares are not significant and there are no true sex differences. However, when the total Chi-square was computed for Grades II to V, it showed that there was a true sex difference which favored the boys. This difference was significant at less than the 0.01 level.

The findings from the "qualitative" study seem to indicate that the boys in Grades II to V misspelled a larger number of unregistered words. (These are the words not used frequently enough by each grade to be recorded in the Rinsland word list). These results seem to indicate that boys misspelled a type of word that has a higher "quality" or that boys misspell more extensively than do the girls, the type of word that is very infrequently used. It is possible, therefore, that the higher error rate of the boys, in the unregistered words, may result partly because they use more of these infrequent words which may be more difficult to spell.

III. CANADIAN SPELLING DEMONS

When the data were analyzed for the purpose of constructing the Canadian demon list the following findings and conclusions resulted:

In Grades II to V in Canada two hundred and forty-eight demons appeared as spelling errors with a frequency of error of six or more times for either sex in one or more of these grades. Thus a Canadian demon list was constructed from the children's free

writing samples.

Ninety-seven of these demons which appeared in this Canadian list were not found in the other lists. These words the investigator called new Canadian demons. Also many demons included in the pther lists did not appear frequently enough as spelling errors, to be included in the Canadian demon list, so they were deleted. See Appendix D.

When the demons from the Canadian list were arranged into spelling tests, the tests were given to the children in the appropriate grades. The results from the dictated tests were correlated with the counts from the free-writing demons. These linear correlations were found to be not significant for each of the four grades in Canada.

The results from these correlations may indicate, for purposes of educational methods in spelling, that demons might be taught in context as well as in list or column form.

IV. IMPLICATIONS FOR FURTHER RESEARCH

Future studies may be conducted from the data used in this study. The number of running words could

be counted for all the writing. The percentage of spelling errors could be found. A comparison could be made between the percentage of errors made by Canadian students and the percentage of errors made by American students which is illustrated in the Fitzgerald study.

The number of different words misspelled and the number of different words written could be tabulated from the compositions. Then a per cent of the different words misspelled could be found. A comparison between percentages of this type, for both Canadian and American children, could be made.

The per cent of total errors made in writing the one hundred worst demons for each grade could be found for Canadian children and this per cent could be compared with a similar per cent found for American children. Also investigations could be started which would attempt to explain why American children seem to have different spelling demons than do the Canadian children. For example, "caught" which is shown by this study to be a Canadian demon is not an American one.

The procedures for giving a "qualitative valuation" to the spelling errors made by each sex in each grade, could be applied to Grades VI, VII, and VIII to see if a trend can be established for either sex. If it can be proved that boys do use words that are more infrequent, this fact could be very important indeed to future vocabulary, word usage, spelling, and language curricula in Canada. As has been shown in this thesis, there is a clear indication that boys misspell more of the unregistered words. See Table XII, page 62. This fact may indicate that boys do have a greater infrequent-word vocabulary than do the girls. Also these unregistered word findings may lead to further inferences. Boys may have more misspellings because they are more courageous in their use of words. By continuing the "qualitative" analysis to Grade VIII, or even through the high school, a more definite trend might be established to show that boys do have a greater infrequent-word vocabulary than do the girls. Such a finding would corroborate the unregistered word findings.

Demon tallying could be continued to the Grade VIII level. Demon counts for these grades would

probably add many new words to the Canadian demon list. Also further statistical analysis of the demon counts might answer these questions: "Do boys misspell the demons more frequently than do the girls? Is there a pattern of mistakes in the demons which could be attributed to sex differences?" Such questions, if answered, could lead to further educational implications.

Finally an analysis of variance might be applied to Table III, page 40, to indicate the significance of the differences between boys' and girls' means in the provinces of Canada and in the grades. Such a statistical tool might reveal many other relationships which are not yet evidenced in the findings in this thesis.

B I B L I O G R A P H Y

BIBLIOGRAPHY

A. BOOKS

Chamberlain, Essie. Report of the Committee on Curriculum Construction. Illinois Association of Teachers of English, January, 1920.

Cornman, Oliver P. Spelling in the Elementary School. Boston, 1902.

Fitzgerald, James A. A Basic Life Spelling Vocabulary. Milwaukee: The Bruce Publishing Company, 1951.

Garrett, Henry E. Statistics in Psychology and Education. New York: Longmans, Green, and Company, 1954.

Gates, Rinsland, Sartorius, and Peardon. The Teachers' Manual to Accompany the Pupils' Own Vocabulary Spellers. (Revised), Grades VII-VIII. Toronto: The Macmillan Company of Canada, 1952.

Jones, Franklin W. Concrete Investigation of the Material of English Spelling. Vermillion, South Dakota: University of South Dakota, 1913.

Lincoln, E. A. Sex Differences in the Growth of American School Children. New York: 1927.

Lyman, Rollo L. Summary of Investigation Relating to Grammar, Language, and Composition. Chicago, Illinois: University of Chicago, January, 1929.

McNemar, Quinn. The Revision of the Stanford-Binet Scale. Boston: Houghton Mifflin Company, 1942.

Rice, J. M. The Futility of the Spelling Grind. New York: The Forum, 1897.

Rinsland, Henry D. A Basic Vocabulary of Elementary School Children. New York: The Macmillan Company, 1945.

BIBLIOGRAPHY (continued)

Stormzand, M. J., and M. V. O'Shea. How Much English Grammar? Baltimore: Warwick and York, Inc., 1924.

Terman, L. M. "Psychological Sex Differences," Manual of Child Psychology. Wiley Publishing Company, 1946.

Terman, L. M., and C. Miles. Sex and Personality Studies in Masculinity and Femininity. New York: McGraw-Hill Book Company, Inc., 1936.

The Scottish Council for Research in Education, The Scottish Pupils' Spelling Book. (Teachers' Book), University of London Press, 1957.

Wallin, J. E. Spelling Efficiency in Relation to Age, Grade, and Sex, and the Question of Transfer. Baltimore: Warwick and York, Inc., 1911.

B. PERIODICALS

Anderson, I. H., and others, "Rate of Reading Development and Its Relation to Age of Learning to Read, Sex, and Intelligence." Journal of Educational Research, 49:447-453, March, 1957.

Day, L. C. "Boys and Girls in Honor Ranks." School Record, 46:288-299, 1938.

Harris, Dale B., and others. "The Measurement of Responsibility in Children." Child Development, 25:21-28, 1954.

Horn, Ernest. "Research in Spelling." Elementary English Review, 6-13, January, 1954.

Martire, J. C., and R. H. Hornberger. "Self Congruence by Sex and Between the Sexes, in a Normal Population." Journal of Clinical Psychology, 13:288-291, March, 1957.

PERIODICALS (continued)

Nolde, Ellenjardin. "Spelling Knowledge and Skill." Elementary English Review, 170-174, April, 1946.

Northby, A. S. "Sex Differences in High School." School and Society, 86:63-64, February, 1958.

Rhinehart, J. B. "Sex Differences in Dispersion at High School and College Levels." Psychology Monographs, 61:1, 1947.

Scargill, M. H. "Canadian Dictionary Projects." Translators' Journal, 3:3, August, 1958. This article is the text of a public lecture given under the auspices of the University of Alberta Summer School in August, 1958.

Schoeppe, Aileen., and others. "Some Factors Affecting Sixteen-Year-Olds' Success in Five Developmental Tasks." Journal of Abnormal Social Psychology, 48:42-52, 1953

Schuttleworth, F. K. "The Adolescent Period; A Graphic and Pictorial Atlas." Society for Research in Child Development Monographs, 3:3, 1938.

Seegers, J. C. "Improvement in Language Work." Elementary School Journal, XXIV:191-196, November, 1923.

Seder, Margaret. "The Vocational Interest of Professional Women." Journal of Applied Psychology, 24:130-3 and 265-272.

Tuddenham, Read D. "Studies in Population." Psychology Monographs, 333:58, 1951.

C. ENCYCLOPEDIA ARTICLES

Freeman, F., and C. Miles. "Sex Differences." Encyclopedia of Educational Research; New York: The Macmillan Publishing Company, 1950, 1201-1208.

ENCYCLOPEDIA ARTICLES (continued)

Horn, Ernest. "Spelling." Encyclopedia of Educational Research, New York: The Macmillan Company, 1950, 1250-1256.

Tyler, Fred T. "Individual and Sex Differences." Encyclopedia of Educational Research, New York: The Macmillan Company, 1960, 680;688.

D. UNPUBLISHED MATERIALS

Armstrong, Wallace B. "A Study of the Relative Frequency and Persistency of Technical Errors in Written Composition." Unpublished Master's Thesis, Department of Education, University of Chicago, 1917.

Johnson, Ivan. "A Study of Errors in English Composition." Unpublished Master's thesis, Department of Education, University of Chicago, 1917.

A P P E N D I X A

SAMPLE LETTER TO PROVINCIAL AUTHORITIES

Date

The Deputy Minister of Education,
Department of Education,
Winnipeg, Manitoba.

Dear Sir:

The Alberta Research Committee wishes to launch a research into vocabulary, language, and spelling, utilizing a Canada-wide sample. The project seems worthwhile since no similar job has been done on this continent within the last twenty years and no extensive study of this kind has ever been conducted in Canada.

Implicit in the project is the idea of a spelling error count, a word count, and an analysis of language usage. No attempt will be made to compare one section of Canada with another. The inclusion of the work of children from the ten provinces will, however, contribute to the national flavor of the study and correct regional variations.

Several matters are of vital concern in launching the project:

1. The number of children participating should be roughly proportionate to the population of the provinces.

2. The classrooms selected should be distributed according to a provincial ratio. The distribution ratio might work out as follows:

Large urban community, 50,000 and over - - ratio - 2.

Small urban community and town, 5,000 to 50,000 - - ratio - 1.

Village and semi-rural areas under 5,000 - - ratio - 1.

SAMPLE LETTER TO PROVINCIAL
AUTHORITIES (continued)

3. In order to avoid limiting the vocabulary used by prescribing subjects for the written compositions no prescription of that kind will be used. Rather, the teachers will be invited to encourage the greatest variety of contribution both in subject matter and in form; that is, narration, description, exposition, original stories, correspondence. The way in which this will be encouraged is explained in the enclosed letter which will be sent to all participating teachers.

As you have surmised the outcome will be the forwarding to me in Edmonton of a varied group of uncorrected compositions from the classrooms selected. The analysis of the written work will be patterned after an improved version of the Rinsland technique. We hope it will result in a continuing contribution, over a ten-year period, to our knowledge of the vocabulary, errors in spelling, and language usage of Canadian children.

A P P E N D I X B

STANDARDIZED INSTRUCTIONS

FOR FREE WRITING

TO THE CLASSROOM TEACHER:

Your co-operation is invited in a Canada-wide survey of achievement in vocabulary, spelling, and language in our schools from grade two to grade eight. Permission to invite your co-operation has been secured from your provincial Department of Education. We are asking teachers of classrooms from grade two to grade eight to have their pupils write a composition for analysis. The following suggestions may prove helpful:

1. Ask pupils to write clearly name, age sex, grade, date and the name of centre (city, town, or village) at the top of the first page.

2. The composition may be on any subject of the pupil's choice. The utmost variety in topic is desirable to ensure wide sampling of spelling, vocabulary, and usage.

3. The composition should be of a length regarded by you as appropriate for completion in one period in your grade. Since lengthy compositions are not particularly desired the actual writing period should not exceed thirty minutes.

4. The composition may take the form of an original narrative, description, exposition, argumentation, summary, personal or business letter. The greater the variety the greater the assurance that there will be wide sampling of spelling, vocabulary, and usage.

5. The teacher may use up to twelve minutes in developing motivation, giving direction, and answering questions before the writing begins. Normal assistance may be provided in grades two and three during the writing period. In grades four to eight no assistance should be given after the twelve minutes of preparation.

6. The compositions are to be forwarded without correction or rewriting. It is of the utmost importance that they must represent the students' work and must not be corrected or revised.

7. For convenience in handling, it is desirable that pupils write their compositions on sheets of uniform size.

A P P E N D I X C

QUANTITATIVE TALLY SHEET

School Tally Sheet

School: White Rock, Nova Scotia Sex: F Grade: II No. 4

Word	Tally	Total	Word	Tally	Total

QUALITATIVE TALLY SHEET

Unregistered Words

Province: Ontario

N = 76

Sex: Girls

E = 342

1a1	
1a2	
1a3	
1a4	
1a5	
1b1	
1b2	
1b3	
1b4	
1b5	
2a	
2b	
3a	
3b	
4a	
4b	
5a	
5b	
6	
7	

A P P E N D I X D

COMMONLY KNOWN DEMON LISTS

* Words Deleted from these Lists to Form the Canadian Demon List.

Fitzgerald	Jones	Gates
about	*ache	about
*address	again	*ache
*afternoon	always	*across
again	among	*address
*all right	*answer	*advice
along	*any	*afternoon
*already		again
always		*all right
am		*altogether
an		along
and		*already
*answer		always
*anything		am
*anyway		*among
*April		*amount
are		an
*arithmetic		*answer
aunt		*any
*awhile		*anything
		*anyway
		*April
		are
		arithmetic
		*argument
		aunt
		*awhile
baby	been	baby
*balloon	beginning	*balloon
*basketball	believe	*basketball
because	*blue	because
been	break	been
before	*built	before
*birthday	*business	*beginning
*bought	*busy	believe
boy	buy	*believed
boys		*birthday
brother		*blue
brought		*bought
		boy
		boys
		break
		brother
		brought
		*built
		*business
		*buy

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
*can	*can't	*can
*cannot	*choose	*cannot
can't	color	*can't
children	coming	*choose
*Christmas	*cough	*chosen
*close	could	*Christmas
*came	*country	*close
coming		*clothes
couldn't		*colour
cousin		*come
		coming
		*committee
		*control
		*conquered
		cough
		could
		couldn't
		*country
		course
		cousin
*daddy	*dear	*daddy
*day	*doctor	*day
*Dec.	does	*dear
didn't	*done	*Dec.
dog	don't	decided
		*develop
		*development
		didn't
		*different
		*dining
		*disappeared
		*disappointed
		*divided
		*doctor
		does
		doesn't
		dog
		*done
		don't
		down

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
*Easter	*early	*early
every	*easy	*Easter
*everybody	enough	*easy
	every	enough
		*equipped
		every
		*excellent
		*everybody
father	*February	father
*Feb.	forty	*February
*fine	friend	finally
*first		*fine
*football		*first
for		*football
*fourth		for
*Friday		*foreign
friend		*forty
friends		*fourth
from		*Friday
fun		friend
getting	*grammar	friends
goes	guess	from
going		fun
good		getting
*goodby		goes
got		going
*grade		good
guess		*good-bye
		got
		*government
		*grade
		*grammar
		guess

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
*had	having	*had
Halloween	*half	*half
*handkerchiefs	*hear	*Hallow'een
*has	her	*handkerchiefs
have	here	*happiness
*haven't	*hoarse	*has
*having	*hour	have
*he		*haven't
*hear		having
hello		he
her		*hear
*here		heard
him		*height
his		*hello
*home		her
*hope		here
*hospital		him
house		his
*how		*home
*how's		*hope
		hospital
		*hour
		house
		*how
		*how's
*I'll	*instead	*I
I'm		*I'll
in		I'm
isn't		*immediately
it		in
it's		*independent
*I've		*instead
		*interesting
		*isn't
		it
		its
		it's
		*I've
*Jan.	just	*Jan.
just		just
know	knew	knew
	know	know
		*knowledge

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
*lesson	laid	*laboratory
*letter	*loose	laid
*like	*lose	*led
likes		*lessons
little		*letter
lots		*lightning
*loving		*like
		likes
		little
		*loose
		*lose
		lots
		*loving
made	*making	made
make	*many	*make
*Mar.	*meant	*making
*maybe	minute	*many
me	much	*maybe
*Miss		me
*morning		*meant
mother		minute
*Mr.		*Miss
*Mrs.		*morning
much		mother
my		*Mr.
		*Mrs.
		much
		my
name	*none	name
nice		*naturally
*Nov.		*necessary
now		nice
*nowadays		*ninety
		*none
		*Nov.
		now
		*nowadays

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
o'clock	*often	*occurred
*Oct.	once	o'clock
off		*Oct.
on		off
once		*often
one		on
our		once
*out		one
*outside		*opinion
		*opportunity
		our
		*out
		*outside
party	price	*paid
people		party
play		people
*played		*perhaps
plays		piece
*please		play
pretty		*played
		plays
		pleasant
		*please
		pretty
		*principal
		*probably
		*proceeded
		*prominent
*quit		quiet
quite		*quit
		quite
*receive	*raise	*raise
*received	*read	*ready
remember	*ready	really
*right		*receive
		*received
		*religious
		remember
		*right

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
said	said	said
*Santa Claus	*says	*Santa Claus
*Saturday	*seemed	*Saturday
saw	*separate	saw
*school	*shoes	*says
*schoolhouse	*since	*school
*send	same	*schoolhouse
*sent	*straight	*seemed
sincerely	*sugar	*send
*snow	*sure	*sent
*snowman		*separate
some		*shoes
something		*similar
*sometime		*since
sometimes		sincerely
*soon		*snow
*stationery		same
*store		something
studying		*sometime
summer		sometimes
*Sunday		*soon
suppose		*speech
*sure		*stationery
*surely		*store
swimming		*straight
		studying
		*successful
		*sugar
		summer
		*Sunday
		suppose
		*sure
		*surely
		surprise
		swimming

COMMONLY KNOWN DEMON LISTS (continued

Fitzgerald	Jones	Gates
*teacher	*tear	*teacher
*teacher's	their	*teacher's
*Thanksgiving	there	*tear
that's	*they	that's
*the	*though	*the
their	through	their
them	tired	them
then	tonight	then
there	too	*Thanksgiving
*there's	*trouble	there
*they	truly	*there's
they're	*Tuesday	they
think	two	think
thought		*they're
through		*though
*time		thought
to		through
today		*time
together		tired
*tomorrow		to
*tonight		today
too		together
*toys		*tomorrow
train		*tonight
truly		too
two		*toys
		train
		*tries
		*trouble
		truly
		*Tuesday
		two
until	*used	uncle
		until
		*us
		*used
		usually
*vacation	very	*vacation
very		very

COMMONLY KNOWN DEMON LISTS (continued)

Fitzgerald	Jones	Gates
want	wear	want
was	*Wednesday	was
we	*week	we
*weather	where	wear
*well	*whether	*weather
went	which	*Wednesday
were	whole	*week
*we're	*women	*well
when	*won't	went
white	would	*we're
will	write	were
with	*writing	when
*won't	*wrote	where
would		*whether
write		which
*writing		white
		whole
		wiener
		will
		with
		*women
		*won't
		would
		write
		*writing
		*written
		*wrote
you		you
your		your
you're		you're
yours		yours

B29787